

The peculiar economics of doping in sports

*Manfred Tietzel**
*Christian Müller***

«My compliments to my team and my thanks to the doctors.
They achieved something superhuman.»

Berti Vogts, former coach
of the German international soccer team

Abstract

The problem of doping in sports consists of a social dilemma situation in which, in equilibrium, each athlete consumes doping means although each one would be better off if everybody gave up taking performance-stimulating drugs. Based on a rational-choice analysis, a proposal which focuses on the «demand side» of the problem is made how this dilemma may be overcome. An abstract, non-enumerative definition of the doping offense is put forward which classifies all substances enhancing the athletes' performance and damaging their health as doping means. In a multilateral «fairness compact» among all participants involved, sports associations and promoters would have to commit themselves on a life-long suspension of all athletes tested positively. Sponsors would have to provide the financial basis for an independent monitoring and enforcement agency. It is argued that this proposal not only drains the doping problem in an incentive-compatible way but also avoids the inefficiencies and inhuman consequences of actual doping practices.

* Professor of Economics, Department of Economics, Gerhard Mercator University Duisburg, D-47048 Duisburg/Germany, E-mail: m.tietzel@uniduisburg.de

** Lecturer in Economics Duisburg - Essen University.

1. Introduction

For several years the media interest in many kinds of high-performance sports seems to have focused as much on the use of drugs as on athletes' records. Positive doping tests and the sudden deaths of a number of athletes have fuelled further rumours. A popular and seemingly obvious explanation for the doping problem is that the athletes' morality and the long standing standards of fair play have gradually eroded with time. In this paper we shall try to show, by means of a rational-choice approach, that there is a different, deeper and, in our opinion, more adequate explanation of drug abuse in sports. Policy advice derived from this explanation differs from recommendations hitherto put forward.

2. Are there any good reasons to dope?

From a rational-choice perspective, the participants in any major sporting event are captured in a prisoners' dilemma, where individual rational behaviour leads to a jointly destructive outcome (see, for instance, Breivik, 1987). On the one hand, literally no one could be interested in using drugs as a means of doping in modern, top-level sports. Spectators wish to enjoy a fair competition; sponsors are interested in avoiding damage to their images; and those who have the least to gain from doping may be the athletes themselves who not only bear a high economic and, presumably, moral cost of doping, but also incur health risks by using performance-enhancing drugs. An enforced control on doping is in everybody's encompassing self-interest. Since each individual party can gain from this, fair play in sports is Pareto-superior to a situation of general drug use.

For any top-class athlete, however, it is individually rational not to comply with a doping ban. Suppose firstly a fictitious situation in which there are no doping regulations at all. What would a sportsman choose to do if he expected all competitors not to be doped? From his point of view, it would be rational to consume performance-enhancing substances in order to increase his particular chance of winning a tournament or, perhaps, of setting a world record. And how, on the other hand, would he act if he knew that his competitors used drugs? In this case, he would have another good reason to

use drugs himself. Since, dispensing with doping would be harmful to himself in that he would have to pay for his unilateral self-restriction by a highly probable defeat. In other words, if all others dope, the «nice guy will finish last» (Gardner, 1974). Therefore, taking one's daily dose of drugs is definitely dominant.

Since each and every athlete calculates in the same way, in equilibrium all participants find themselves in the collectively least desired all-doping situation. Given these circumstances, individual rationality implies group irrationality.

The chemical «arms race» for victory, yet, is socially inefficient. Only one of many competitors can win an event. The doping costs of each other athlete are wasted. In a situation in which drug use spreads to all athletes, a collective «disarmament» would be beneficial to all. Even the winner would gain since it is plausible to assume that a general «armistice» would not change the relative positions of the participants in a tournament. The athletes face the problem, however, of securing the reciprocity of fair play in order to be able to look after their encompassing self-interests, without the risk of ending up as a sucker. Just as Ulysses once let himself be bound to the mast of his ship in order to withstand the sirens' singing, athletes are in need of an external binding mechanism in order to be able to protect themselves from becoming objects of their own narrow interests. Therefore, an enforced doping ban does not bind the athletes to some arbitrarily chosen and externally imposed set of rules, but to their own encompassing interests.

In modern societies, situations abound in which only externally enforced restrictions on individual freedom can help a person to act in accordance with his own encompassing interest. All kinds of justifications of a government's intervention into its citizens' liberty in one way or other depend on a «paradox of being governed» (Buchanan, 1975). As Jean-Jacques Rousseau (1913: 15) put it 200 years ago, men must «be forced to be free.» A century earlier, Thomas Hobbes maintained, in a similar vein, that only «that great Leviathan» – a common power formed by, but external to a given state's citizens – can free men from their positional «warre of every man against every man» in anarchy, which renders the life of man «solitary, poore, nasty, brutish, and short» (Hobbes, 1914: 65).

External coercion can help to avoid an anarchical competition fuelled by the participants' partial interests. In the American Hockey League, for example, players deliberately chose not to wear helmets, even though most of them explicitly claimed to favour a

mandatory rule to do so (see Schelling, 1978). The reason for this was that many players believed that wearing helmets would reduce their efficiency and put them at a disadvantage, since they would be handicapped by their head protection. Thus, every player valued avoidance of an inevitable reduction in competitive strength more highly than his health. In this example, hockey players are caught in a social trap: their strong taste for victory causes a jointly harmful outcome. If wearing helmets was mandatory, all players could achieve a joint cooperative situation in which no one would have an advantage over the others, and at the same time everyone would incur a smaller risk of being injured.

3. Under which conditions will athletes use drugs?

External enforcement systems of doping regulations are already in existence. Why do the athletes dope nevertheless? One of the reasons may well be the fact that laws are never perfectly enforced. Provision of information about the actions of individuals is costly and must respect their privacy. Not every single violation of a law will, therefore, be sanctioned (see Stigler, 1970). The effective amount of sanctioning depends both on the punishment laid down in the law and on the probability of law enforcement.

A rational law-breaker, who maximizes the expected value of his net utility, will act illegally as long as the incremental utility of his action exceeds the expected marginal disutility imposed by sanctioning. This disutility is the product of the individually perceived costs of being sanctioned times the probability of discovery and punishment for the offense. In the above example of the American Hockey League, the probability of being punished for not wearing a helmet would have been near one, as it can be easily observed whether a player is wearing a helmet or not. A relatively small absolute sanction would, therefore, have been sufficient to help the players escape their social dilemma.

The case of doping is a very different matter. On the one hand, drug abuse by athletes is extremely difficult to observe; the use of certain drugs cannot even be detected at all. Consequently, the probability of detecting a violation of anti-doping rules is small. As comparatively low expected costs of punishment are coupled with

high prizes for winners, even a high nominal sanction may not suffice to suppress doping entirely.

Interpersonal differences in the expected value of a given sanction may explain why seemingly not all top athletes have equal incentives to dope. Some of them are bound by sponsoring contracts stipulating their immediate dismissal in case of a positive doping test. If such an additional amount of sanctioning in a sponsoring contract is high enough, a rational athlete will refrain from doping.

4. The incentive to dope: Some hypotheses

Which athletes consume performance-enhancing drugs?

As alert readers of newspapers, we probably have the *prima facie* impression that doping is much more common in certain types of sports such as cycling or track and field athletics than in others such as golf or soccer. This impression, however, may in fact be grossly misleading. There is good reason to believe that we shall never be able to verify this impression nor its contrary. It lies in the very essence of doping that it be done in strict secrecy and, as a consequence, reliable and comprehensive data will never be available.

For one thing, the absolute number of reported doping cases in some branches of sports has a meaning only in relation to the number of athletes active in these fields of sports. Secondly, the incentives, as well as the particular characteristics of the various types of sports can differ to a large extent. For example, the difference in the incomes of the heavy weight champion in professional boxing and the biathlon world champion is certainly enormous. In addition to this, both, the number of doping tests per year and per athlete and the rules of sanctioning, differ from country to country and from sport to sport. Finally, the effect of drugs on performance is enormous in weight-lifting and probably close to zero in golf. It is for these reasons that any number of positive doping tests that should become known, do not indicate an effective doping intensity in the respective branches of sports. Since the available data, for these reasons, must be taken to be strongly and systematically biased, it would be inadequate to argue on such a basis. Under these informational conditions, all we can do is try to make some 'infor-

med guesses' about the plausible out-comes of different incentive structures.

As a first guess one might presume that, other things being equal, the incentive to dope is stronger in individual sports than in team sports. The reason for this seems to be obvious: whereas the benefits of an enhanced performance accrue exclusively to a doped heavyweight boxer, a doped football player's performance is beneficial for the whole team; the latter's doping would raise his contribution to a public good. Competition among teams for ranking high in their respective leagues causes only a moderate incentive for an individual team member to dope. As a member of a small group, his contribution to his team's success is certainly not insignificant nor is his resulting share in the increased team income. Normally, however, his performance is not decisive for the team's overall performance. Triumphs as well as defeats are always shared by all. Consequently, the individual incentive to smooth the team's way for victory by means of pharmaceutical products will be a negative function of group size: the bigger the team, the smaller the incentive to dope.

Alas, the moderate influence of team competition on an individual team member's decision to dope may well be amplified by competition among athletes to become or remain a member of a high ranking major league team. Since the number of high income jobs in major league teams is small and cannot be increased, competition for membership in a team must be expected to be extremely fierce. Contrary to intuition and casual observation, we should not expect team sports to be havens of fair playing guys (and girls for that matter).

Also, one might plausibly assume that the incentive to dope in individual sports (*ceteris paribus*) is more distinct whenever peak performances can be measured in absolute numbers. The actual world record holders, say, in long distance running or javelin throwing clearly rank higher than any comparable athlete in human history. Any current world record holder in such a branch of sports holds a worldwide natural monopoly, sometimes for quite an extended period of time as, for instance, did Bob Beamon who held the world record in long jumping for 23 years. This natural monopoly, if marketed appropriately, can create considerable rents.

In branches of sports in which results can only be recorded as a rank order of outcomes in a certain tournament, no such monopoly rents can be produced quite simply because a tournament winner

ranks first over a small number of competitors at a given place and time and not generally over all athletes in history. We have only a vague idea of who was the best golf player of all time or even of the last decade. Therefore, one should expect the ratio between the yearly income of a world record holder and that of the second ranking athlete to be higher than the income ratio of the athletes who won the most and those who won the second highest number of tournaments in a year. As a consequence, positional competition should be more pronounced and the incentive to dope more marked in the former than in the latter.

5. Which governments support doping?

Casual observation as well as a-priori reasoning suggest that the doping phenomenon is not only unequally frequent in different kinds of sports but also differs among states. Past and present communist states had and still have a reputation for systematically doping their athletes, which was supported by a purposeful pre-selection of talented youths. Recently sports officials of the former German Democratic Republic had to defend themselves in doping trials before the courts. These trials produced evidence that very young athletes were quite often doped against their will and, in many cases, even without their knowledge.

Again, reliable data of approximate completeness will never be available. As doping was implemented with governmental assent and support, everything was done to keep the real source of the international superiority of their athletes secret; with only a few exceptions of occasional circumstantial evidence, the facts will remain behind a thick veil of silence.

Having had very few, if any, social or economic performance characteristics comparable to those of Western democracies, being ahead of the rest of the world at least in the realm of sports was one of the rare and badly desired occasions to demonstrate what «socialist progress» means.

In order not to lose the self-initiated «competition between systems» due to an emigration drain, the citizens had to be kept within the national boundaries of the communist states by means of an unprecedented migration barrier, the Iron Curtain (see Tietzel and Weber, 1994). In order to win the competition between systems, at

least in the field of sports, top athletes primarily had to be tied closely to their socialist states of origin. On the one hand, they had to perform at international meetings; but, on the other hand, their incentives to flee from their team in order to have a chance at an international career had to be curbed. This was achieved by taking the sportsmen's relatives as hostages so to say who did not have the slightest chance to leave the country.

Therefore, in spite of outstanding performance, the income of a top Western athlete was unavailable to them. A home-made socialist incentive to dope was created by rewarding successful athletes with comparatively high incomes and many other privileges, for themselves and their families, such as preferential access to university education and housing. Given the comparatively low incomes of normal citizens in ordinary professions, the difference in income between a socialist top athlete and the average citizen was certainly extraordinarily large. In view of the relative size of this rent and owing to the fact that an athlete definitely was not sanctioned for doping, one should expect a high degree of consent among athletes to be manipulated for performance; in a way, they were in the positions of «big enchanted princes in small ponds» (see the cartoon in Frank, 1985: II). What was unachievable with hammer and sickle was made possible with the help of the syringe.

6. An erosion of morality?

According to a widely held opinion, fair play in sports was much more common in former times than it is nowadays. Given our analysis, this claim lacks any foundation. Through the ages, athletes have competed by any means for fame, glory and money. While today doped athletes, by manipulating the probability of victory, only harm their undoped competitors in an indirect way, athletes of former times even tried to reduce their rivals' competitiveness directly. In the ancient Greek agones boxers concealed metal weights in their hand belts or they fitted them with dangerous thorns. The historian Dio Cassius reported that the Roman emperor Caligula did not even refrain from poisoning the racehorses and the charioteers of those stables which were serious competitors to the «green» chariot racing team he favoured fanatically. The myth propagated by Pierre de Coubertin, the founder of the modern Olympic movement, that ta-

king part and not winning was important at the Olympics of antiquity, is certainly based on the 19th century's idealized view of antiquity, not however on historical facts.

A comparable historical misinterpretation seems to be the cause of the repeatedly expressed ad hoc explanation of doping cases as being the consequences of a widespread erosion of morality in sports. The observable steady increase of registered doping cases through the years can be explained in quite different terms. On the one hand, in many countries severe doping regulations were only introduced during the last decade; numerous kinds of medication formerly permitted have been banned since then. This alone may well have increased the number of doping offenses officially disclosed. On the other hand, the technical development of performance-enhancing substances has proceeded at an increased rate. While doping laboratories have been working hard to finally develop a reliable test for the use of the drug Erythropoietin (EPO), which still plays a prominent role in sports that require endurance, athletes allegedly have switched to a more efficient but also more dangerous substance. Given the rapid development of novel drugs, even the toughest of doping controllers will perhaps win a battle against drug abuse in sports; but they will never win the war.

Finally, the stakes within the big «game of sports» have risen significantly during the last few decades. At the beginning of the century, prominent sporting events, such as the Olympics or the Tour de France, were competitions among amateurs. These athletes were lured to take part, in the absence of high prizes and without any lucrative promotional offers, by the potential fame and possibly for entertainment, which, by the way, is the original etymological meaning of the word «sports». In such «low-cost situations» in which moral behaviour was relatively cheap, the incentive to cheat was not as strong as it is today.

The world of sports, however, has changed significantly since that time. The advent of modern media turned sporting events into goods of mass consumption. Whereas tournaments could formerly only be watched by spectators in a stadium, TV serves millions at zero or minimal variable costs. The decrease of per capita costs of an event's provision is no longer limited by the capacity of a stadium, but continues over the much larger numbers of sports fans at their TV sets.

Promoters of big sporting events fully exploit the commercial potential of sports. Spectators' interest in amateur sports has dimini-

shed, since access to high performance professional sports has become so easy and cheap. The admission of professionals to the Olympics and other international sporting events has certainly been motivated by the economic interests of their promoters. Under the pressure of attracting media interest, promoters compete with hitherto unexperienced rigor for the elite of international top-level sports.

The advertising industry discovered the promotional value of sports. A spectator, instead of buying a ticket, now «pays» in terms of simultaneous consumption of advertisements. Top ranking athletes are in a position to «lease» their natural monopoly to sponsors for commercial use. Advertising one's brand on an athlete's cap or shirt has a twofold advantage over other kinds of publicity. Whereas ordinary TV commercials attract only moderate attention, to say the least, advertisements on an athlete's clothing are naturally noticed jointly and with the same focus as this athlete's performance. In addition, the per capita costs of this type of ad decrease at a much higher rate than in other forms of advertisement because the amount of money the sponsor pays an athlete can be regarded as a fixed cost of advertisement. It is, therefore, hardly astonishing that the budgets of sports ads are constantly increasing and that competition among sponsors for top athletes is tough. In track and field athletics, most world records occur at major events in New York, London or Zurich because promoters and sponsors can, in some sense, «buy» a world record by offering a remuneration.

Sponsors and promoters are trapped in a social dilemma comparable to the athletes' doping dilemma. While the latter compete on streets and sports fields for records and titles, the former bid for the commitments of the prospective record-setters or for advertising contracts with the record-holders in a less visible way. In a positional competition barely less tough than that among the athletes, marketing agencies try to outbid each other with the result of ever increasing sponsoring budgets.

The mass commercialization of sports releases a «superstar effect» which, in turn, makes the reward structure in most sports highly nonlinear: the top-level athletes' rewards rise in great disproportion to talent and ability. As a consequence, the bulk of the earnings goes to a handful of participants. The right-hand tail of the income distribution among athletes is much thicker than the lower. For example, the top five money winners on the pro golf tour have annual stroke averages that are less than five percent lower than those of the fiftieth or sixtieth ranking player; however, they earn

four or five times more money. Thus, trifling differences in performance sufficient to define the rank order may cause substantial differences in incomes (see Rosen, 1983: 451). The American freestyle swimmer Shirley Babashoff, for instance, won four silver medals in the Montreal Olympics in 1976 although she was the favourite. For her events, she was beaten by East-German swimmers, whom she described in an interview as «huge, hairy and deep-voiced. ... I was not second, I have been defeated by men.» Today she works as a postwoman in Huntington Beach, Los Angeles, and she still grieves over the idea, that as a fourfold gold medal winner she could have expected a career comparable to Mark Spitz's (see Kalwa, 1998).

It is simply insufficient even to be ranked a very close second place. As the often cited slogan, attributed to Vince Lombardi, puts it: «Winning isn't everything, it is the only thing» (quoted in Breivik, 1987: 84). If a great deal is at stake the athletes tend to do anything to win, doping included. This has less to do with an erosion of the athletes' morality and more to do with an incentive system in professional sports which has changed radically. Within the complicated nexus of interests involving spectators, sponsors, promoters and managers, the price athletes have to pay for morality, these days, has simply risen to extremes.

7. An incentive compatible solution to the doping problem

«Doping» defined

Are there safe ways out of these dilemmas? The difficulties in finding a solution begin with the very problem of stipulating the types of behaviour that are to be regarded as «doping.» The usual expedient, adopted for instance by the International Olympic Committee, is to set up a so-called «negative list» which specifies all the substances the use of which is to be regarded as a fact constituting «doping.» The use of drugs not included in the negative list is not liable to be punishable. This provides a strong incentive for athletes, coaches and sponsors to substitute the listed drugs for novel, unlisted drugs in order to avoid doping in the legal sense, yet not factually. The incentive to substitute illicit drugs for novel ones correlates with the degree of enforcement of the negative list. As parado-

xical as it may sound, a strict enforcement of a negative list will aggravate the doping problem.

In order to avoid evading strategies and their perverse side effects, it has been suggested that the athletes themselves be entrusted with defining what is to be regarded as doping (Bird and Wagner 1997). According to this proposal, any drug which enhances an athlete's performance so sweepingly that he is unwilling to overtly concede its consumption is to be considered a doping substance. The core of this proposal amounts to demanding that all athletes keep a drug diary in which they record any drugs taken. If, by means of comprehensive tests, it becomes evident that an athlete has taken a drug not enlisted in his diary he is found guilty of doping and will be punished. The premise upon which this proposal rests is that the term «doping» now refers not to the consumption of a drug on a negative list, but to drugs used secretly.

It seems highly questionable, though, that the evading reactions triggered by a negative list will be removed by means of drug diaries. The range of drugs, the overt use of which is not regarded as embarrassing by the athletes, will gradually expand. An athlete, who refrained from taking certain drugs up to some point of time and who, more and more, observes others frankly confessing the use of these drugs, will experience a growing competitive disadvantage. The decision to use the drug himself will become all the more likely the less the general public is informed about the effects of the drug and the less reason he has to feel embarrassed about using it himself; what so many others do cannot be completely disrespectable. Thus, the introduction of the drug diary will initiate a continuous expansion of the number of drugs used overtly. It will not lead to a removal of doping, but to its factual legalization.

Therefore, one should not be reluctant to define doping in an abstract way, even though the problem of operationalization will be unavoidable in the sense that cases will occur where it will be difficult to decide unambiguously, whether these represent the constituent facts of doping or not. No legislator would even consider the idea of defining «theft» by means of a negative list of the tools needed for burglary or allow the perpetrators to decide which tools are admissible for burglary and which are not.

It seems sensible and also operational to define «doping» as an athlete's consumption of drugs which increase his competitive performance and at the same time are damaging to his health. If the use of some drug were not performance-enhancing, no third party

would be placed at a disadvantage; no other athlete would feel compelled to take part in a chemical arms race. If the drug were not injurious to one's health, its use would hardly be distinguishable from one's daily intake of food. Given this definition of doping the burden of risk to be punished for taking novel drugs is completely with the individual athlete, whereas an exhaustive negative list does not impose such risk at all.

According to our definition, even those athletes whose performance was manipulated by some third party without their knowledge are to be regarded as doped. Examples that come to mind are the manipulation of an embryo's genes or, as was a widespread practice in the former German Democratic Republic, the administering of hormones to child athletes. These athletes, too, must be punished, by excluding them from sports competitions, in order to avoid other athletes being placed at a disadvantage and to obviate the incentive for these other athletes to keep up with them. An athlete doped without his knowledge can, of course, sue the manipulator for the damages caused by the assault.

8. A fairness compact in sports

In addition to defining «doping» in a clear-cut way, it has to be established who is to be punished, to what extent and in which way. The regulations against doping, be that those in existence or those called for by officials, relate mainly to the «dealers» i.e. coaches or doctors who supply and provide the drugs. According to the German Pharmaceutics Act of 1998, for instance, it is explicitly forbidden to «offer for sale, prescribe or administer to others pharmaceuticals for the use of doping in sports.» Violations can be punished by a fine or imprisonment of up to three years. Also, just recently, the Australian Olympic Committee did not hesitate to call for a lifelong period of detention for such an offense.

Doped athletes are usually treated with extraordinary leniency; sports associations consider suspensions of a few months to be an adequate punishment. Even the Australian Olympic Committee which calls for punishing dealers in a draconian way contents itself with a two years punishment for athletes tested positively.

Imprisonment, be that of athletes or suppliers, for violations of doping regulations is as inadequate a punishment as it is inefficient.

To begin with, a person absolutely uninvolved, the general taxpayer, would have to bear the direct cost of executing the sentence. In addition, punishing the act of doping by imprisonment is in harsh disproportion to the nature of the offense. Doping an athlete is something quite different from an offense such as killing him, all the more so in the case of an athlete who takes drugs voluntarily. Finally, whether or not the legislator is the most appropriate regulator in this area can be reasonably questioned; there is good reason to believe that sports associations, sponsors and promoters of sports events are the more natural and more efficient regulators.

It is conceivable that there is a solution to the doping problem which is incentive-compatible, efficient and which preserves the autonomy of sports. This solution could consist in a fairness compact among sports associations, promoters and sponsors that ideally should comprise all kinds of sports and should be negotiated on a supranational basis. The main emphasis of that compact should be the regulation of the sanctions on athletes, who are found guilty of doping, and the enforcement of such sanctions. The compact should be designed in such a way that it is self-enforcing in the sense that it lies in the self-interest of the contracting parties to comply with the rules laid down. In addition, a unanimous agreement on the rules of the compact should be conceivable, as well as reasonable, in the sense that everyone who is party to it would be better off with it than without it. Contrary to actual practice and alternative proposals, the fairness compact we have in mind aims at the demand side for drugs; the suppliers, who are nowadays the only ones who face a serious threat of sanctions, go unpunished under such a system of rules with the obvious exception of the ordinary legislation concerning assault.

First of all, sports associations and promoters should agree on sanctioning athletes convicted of doping much more seriously than now. Athletes who have tested positively for doping ought to be excluded irrevocably from all forms of sports and from every competition for a period of time as long as their expected sporting career. A lifetime exclusion would be unambiguous and render unnecessary complicated calculations and predictions. Though lifetime exclusion for athletes may seem an unusual sanction and unappropriate given the nature of the offense, it is not without precedent; in the fifth century B.C. Greek athletes, who fatally injured their opponents in boxing, were banned for the rest of their lives from the Panathenian games (see Connolly and Dodge, 1998: 83).

Such a provision, if perfectly enforced, would reduce a professional athlete's expected lifetime income to that which is achievable in the next best job he is able to perform. The rent on being a gifted professional athlete would be reduced to zero, and the athlete alone, who makes the decision to dope and possibly profits from it, would incur the cost of being sanctioned which is measurable in terms of a reduction in his expected lifetime income.

An exclusion from sports competitions for the expected duration of an individual's sporting career, rather than imprisonment, is perfectly incentive-compatible insofar as —due to the superstar-effect—the expected cost of being sanctioned increases more than proportionally compared to the incentive to dope. The expected cost of being sanctioned for doping is higher, the higher an athlete ranks in his branch of sports and the better, for this reason, his possibilities are to obtain a high income as a professional athlete.

Insofar as it can be assumed that the rank order of athletes is the same with and without doping, this part of the fairness compact makes an improvement feasible, to which the athletes' unanimous consent can, with good reason, be assumed.

In a similar vein, sponsors, too, could make an improvement if they, on their part, would bind themselves to sustained efforts to increase the probability of detecting doping offenses. In order to create a reputation of supporting fair and clean athletes for themselves, they would be well-advised to spend a fair share of their sponsoring money on financing independently conducted doping controls and on the development of new and improved doping tests.

Information on how much of a single sponsor's advertising budget is contributed to the support of doping testing and detection, should be made public in order to build an individual reputation for fairness. The general public will regard these individual contributions as a pledge by means of which a sponsor makes his reputation dependent on the behaviour of the sponsored athletes. If any of the sponsored athletes were tested positively for doping, the pledge would be lost. Therefore, sponsors would have an incentive to urge their athletes to compete fairly when they negotiate sponsoring contracts.

The suggested committing compact is credible only if doping tests and legal procedures are implemented by independent institutions. If controls or enforcement activities were carried out by sponsors, promoters or sport associations themselves, top athletes might put pressure on them by threatening to refrain from participating in

a sports meeting unless left untested. Even in the case of an athlete found guilty of doping, sponsors as well as promoters would have a strong incentive to suppress information about the matter in order to retain their respective reputations and pledges. In the existing system this has already happened; in 1996, for instance, in the Olympics held in Atlanta, the IOC made efforts to suppress information on eleven positive tests.

9. Conclusion

The doping problem in sports is solvable. It consists of a prisoners' dilemma-type situation in which, in equilibrium, each individual sportsman acting rationally consumes performance-enhancing drugs although each one would be better off if everybody refrained from taking them. The cause of this dilemma is the athletes' commitment problem which turns their individual choices of fair play into a self-damaging choice, as long as it cannot be secured that all other athletes behave correspondingly.

In this paper we have launched a proposal which allows all those affected to escape from this dilemma. Other than «negative lists» scheduled by the IOC or other sports associations, our proposal is based on an abstract, non-enumerative definition of the doping offense which considers all performance-enhancing and health-damaging substances as doping means.

In contrast to other proposals and legal regulations which focus on the «supply side» of the problem we suggest, on the basis of a rational-choice analysis, a system of incentives that aims at the «demanders» for drugs in sports. All participants –sports organizations, promoters and sponsors– could be better off in consenting to a comprehensive fairness compact. In such a compact sports associations and promoters would have to commit themselves to an extended suspension of all positively tested athletes. Sponsors would have to provide the financing of an independent monitoring and enforcement agency.

We have shown that this proposal not only drains the doping problem in an incentive compatible way, but also avoids the inefficiencies and inhuman consequences of actual practice. Whether the contents of a top athlete's baggage will continue to attract more media interest than his obtained results, which are often stunning wi-

thout doping, depends on how the doping problem will finally be settled.

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