

Agenda

Advancing economics in business

Unsportsmanlike conduct? Incentives and penalties for doping

Controversy around doping was rife in the run-up to the 2016 Olympics and Paralympics. Insights from the economics literature on optimal punishment mechanisms show how penalties can be set so as to deter doping—at both the individual athlete and team level. The credibility and consistency of penalties are key to effective deterrence

The 2016 Olympics and Paralympics were a cause for celebration for those athletes who won medals and came top of their respective disciplines. However, concerns around doping made headline news in the run-up to the games. Despite changes to doping regulations in recent years, incentives still exist for individual athletes and entire teams or national organisations to cheat.

The economics literature on the optimal design of penalties discusses the many contexts in which they can be used, including in discouraging cartels and other anticompetitive agreements. The research finds that deterrence is most effective when penalties are set consistently, in a framework that balances the costs and benefits of the action in such a way as to discourage it. In the case of doping in sport there can be individual- and institutional-level incentives for cheating, and both of these can be addressed by the penalty regime.

The guidelines for what constitutes a doping violation in Olympic competition are set out by the World Anti-Doping Agency (WADA), which publishes a list of prohibited substances, manages laboratory accreditation, and oversees implementation and compliance of the World Anti-Doping Code (the Code). Under WADA rules, athletes must be available for testing at any time, and evasion of tests is subject to punishment in the form of suspensions and other penalties.

While estimates of the prevalence of doping among Olympians vary, just over 1% of athletes competing in Rio 2016 had at some point been penalised for doping prior to the Olympics, but were reinstated in time to compete. Of these, a quarter went on to win medals.¹

Incentives for doping

The pressure to succeed in sport is enormous, as can be the rewards. Top athletes—such as Usain Bolt, Mo Farah and Michael Phelps—have become national heroes, and occupy a unique place in popular culture.

Why does doping matter?

Anti-doping is primarily about fairness in sport, and the idea that competition should be based on natural talent and hard work. There are also health concerns, as many of the drugs prohibited by the Code can have harmful side effects, such as liver damage, arthritis, strokes and heart attacks.¹

Doping can have a significant influence on performance, and therefore the fairness of competition. As such, it has an important effect on public perception and enjoyment of the Olympics. A 2014 survey found that half of US adults see cheating in sport as ‘the greatest offense that can be done by an Olympic athlete or team’.² The significant majority also worried that the athletes they were supporting were in fact doping, and wanted more action to be taken to deter it, including more severe penalties for those caught.

Note: ¹ USADA, ‘Effects of PEDs’, <http://www.usada.org/substances/effects-of-performance-enhancing-drugs/>. ² The Foundation for Global Sports Development (2014), ‘Doping Survey Reveals Public Opinion’, <http://globalsportsdevelopment.org/doping-survey-reveals-public-opinion/>.

Monetary rewards for elite athletes can be substantial. In addition to sponsorship money, countries may pay their athletes a lump sum if they win medals. At the higher end, Singaporean athletes are paid an estimated US\$753,000 per gold medal—as was paid to Joseph Schooling, Singapore's first ever Olympic medallist, at the Rio Olympics. Payment in other countries varies; for example, Italy and Germany pay their athletes US\$185,000 and US\$20,000 for gold, respectively, while UK athletes do not receive these direct payments for success.² By contrast, the pay for those not at the very top is often poor—a 2012 survey found that half of American track and field athletes who ranked in the top 10 nationally in their respective events earned less than \$15,000 a year from sport.³

While the exact impact of banned performance-enhancing drugs is unknown, East German records indicate that anabolic steroids can reduce an athlete's time in the 100m sprint by 0.7 seconds and in the 1500m race by 7–10 seconds, and increase an athlete's shot-put throw by 2.5–5m.⁴ The difference in pay-offs in terms of fame and money—from coming in, say, fourth rather than first—is substantial. This creates an incentive for doping, even for athletes who would perform at a very high level anyway, given the often incredibly close margins of victory in Olympic sports.

There may also be an incentive for national sport authorities and teams to encourage their athletes to take performance-enhancing drugs, with or without the athletes' knowledge. Sporting success can be a major source of national pride. In some cases, athletes may be pressured into doping under threat of being removed from their team.⁵ This could lead to an outcome where doping is pervasive in a certain team or even an entire sport, if athletes who refuse to dope are removed from teams and only those who acquiesce to the pressure to do so remain in competitions.

Doping can become widespread in some sports and this creates a further incentive for individuals to cheat. A case in point is cycling, which has suffered in the past from a general perception that cheating is endemic. In such circumstances athletes may feel they have to dope just to maintain a level playing field with their rivals. This can create a sub-optimal equilibrium, similar to the classic 'prisoner's dilemma' in game theory, which states that it would always be optimal for players to dope, and never optimal for them to stay clean.

Penalties for doping

Under current WADA rules, competitors caught doping are subject to a wide variety of penalties: their medals can be taken away from them, their prize money can be reclaimed, their results can be rendered invalid, and they can be banned for years—or even life.⁶ Regional and national anti-doping organisations may impose additional sanctions.⁷ Wider consequences that often follow from doping claims include loss of sponsorship, as well as shaming in the media. In sum, the sanctions can have major financial and reputational consequences.

However, the enforcement of penalties can be unpredictable, and some athletes have managed to circumvent drugs tests for many years. Perhaps most famously, American cyclist Lance Armstrong repeatedly passed drugs tests for over a decade while doping—accumulating victories and fame before ultimately being exposed by a teammate.⁸

Athletes from many countries have failed drugs tests and received penalties, but the multitude of international bodies involved can lead to inconsistencies. In 2016, despite a recommendation by WADA to ban the entire Russian Olympic team,⁹ most Russian athletes were ultimately allowed to compete. In contrast, the entire 267-member Russian Paralympic team was banned from competing in the 2016 Paralympics.¹⁰

Inconsistent application of the rules is not a recent phenomenon. For example, US swimmer, Rick DeMont, was stripped of his gold medal at the 1972 games, while at the same Olympics 14 athletes found doping in the modern pentathlon were not disqualified.¹¹

Optimal penalties: prescriptive rules or discretion?

An optimal penalties framework can be used to identify the appropriate level of punishments for doping, as well as the resources and effort to put into enforcing the regime. This needs to be reasonably predictable, while enabling some discretion.¹²

Assuming that athletes (and sports teams) at the top of their game are 'reasonably rational', they will assess the expected benefits of doping against the expected costs—except of course in cases where doping occurs without an athlete's knowledge. The benefits, should they emerge, will come in the form of the performance edge gained over competitors, the podium positions achieved, and the resulting financial and reputational rewards. The costs will occur through being caught, and might include exclusion from competition, forgone medals, loss of reputation, and loss of income. For optimal deterrence, penalties would need to be set such that—given the probability of being caught—the expected costs of doping exceed the expected benefits.¹³ For many, moral factors will also come into play—some people will never cheat as a point of principle. However, this is not the group of people at whom a deterrence-based regime would be aimed.¹⁴

The credibility and consistency of penalties is key to an effective framework. If athletes assume that they will not face substantial penalties if caught doping, since previous dopers received limited sanctions, this will diminish the perceived costs of doping. If there is a belief that doping is difficult to detect, as many athletes avoid testing positive for performance-enhancing drugs, this will decrease its expected costs.¹⁵ A deterrence-based framework therefore calls for tougher sanctions when detection is more difficult.

Institutional pressure, or a culture of doping, can further push athletes towards doping.

In practice, it can be difficult to assess the precise benefits of doping, its costs, and the probability of detection. A rules-based approach that seeks to circumvent these practical issues could be adopted instead—which could involve relating the penalties to the seriousness of the infringement and its duration. Aggravating factors (such as repeat offences) and mitigating factors (such as negligence) might then also be considered. The current WADA Code does take these sorts of issues into account. The question is whether athletes expect the sanctions to be applied, given the complex interplay of international bodies.

Concluding thoughts

Top athletes often dedicate their lives to their chosen sport, and the desire to win can be incredibly strong. Striving to

win at any cost may lead some athletes to consider doping. In sports where the practice is widespread, athletes may feel that their choice is either to dope and have a chance of winning, or stay clean and get left behind. Aside from the moral and health-related concerns, evidence shows that perceptions of doping undermine the value of sport to those who watch it.

An optimal punishment regime to deter doping requires consistency in approach, as an uneven or inconsistent application of the rules can give athletes the impression that perhaps they will not be caught, or if they are then they may be let off lightly. Some discretion is of course necessary (as each case is different), and there may be mitigating factors or nuances that can best be considered by an industry expert body. In any case, in order to be an effective deterrent, the penalties for doping, multiplied by the perceived probability of detection, must outweigh the benefits of cheating.

¹ Aisch, G. and Lai, K.K.R. (2016), 'At Least 120 Athletes at the Rio Olympics Were Previously Suspended for Doping', *The New York Times*, 18 August.

² Khan, S. (2016), 'Rio 2016: How much money do athletes get if they win a gold medal at the Olympics?', *The Independent*, 17 August.

³ Riley, C. (2012), 'Olympians face financial hardship', *CNN*, 10 July.

⁴ Noakes, T.D. (2004), 'Tainted glory – doping and athletic performance', *The New England Journal of Medicine*, **351**:9, pp. 847–9.

⁵ BBC (2012), 'Lance Armstrong: Tyler Hamilton on 'how US Postal cheated'', 12 October.

⁶ WADA (2015), 'World-Anti-Doping Code', pp. 60–79.

⁷ WADA (2015), 'World-Anti-Doping Code', pp. 72–3.

⁸ Fotheringham, W. (2015), 'Timeline: Lance Armstrong's journey from deity to disgrace', *The Guardian*, 9 March.

⁹ WADA (2016), 'WADA Statement: Independent Investigation confirms Russian State manipulation of the doping control process', 18 July, <https://www.wada-ama.org/en/media/news/2016-07/wada-statement-independent-investigation-confirms-russian-state-manipulation-o>.

¹⁰ Steinberg, J. (2016), 'Russia banned from Paralympics after losing appeal against doping exclusion', *The Guardian*, 23 August.

¹¹ Hunt, T.M. (2011), *Drug Games: The International Olympic Committee and the Politics of Doping, 1960-2008*, University of Texas Press. Binder, D. (1972), '18 athletes said to fail drug test', *The New York Times*, 4 September.

¹² For a discussion of optimal penalties setting, see Oxera (2011), 'Crime doesn't (always) pay: what determines the level of fines?', *Agenda*, October, [http://www.oxera.com/Latest-Thinking/Agenda/2011/Crime-doesn%E2%80%99t-\(always\)-pay-what-determines-the-le.aspx](http://www.oxera.com/Latest-Thinking/Agenda/2011/Crime-doesn%E2%80%99t-(always)-pay-what-determines-the-le.aspx).

¹³ Becker, G.S. (1974), 'Crime and Punishment: An Economic Approach', *Essays in the Economics of Crime and Punishment*, National Bureau of Economic Research, pp. 1–54.

¹⁴ There may also be behavioural biases at work, at the individual or team level. For brevity, these issues are not discussed further in this article.

¹⁵ Increasing the accuracy of doping tests is discussed in Oxera (2015), 'Dealing with doping: a question of the benchmark' (reprint), *Agenda*, April, <http://www.oxera.com/Latest-Thinking/Agenda/2015/Dealing-with-doping-a-question-of-the-benchmark.aspx>.