Institute for Strategy and Business Economics
University of Zurich

Working Paper Series
ISSN 1660-1157

Working Paper No. 154

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February 2012

Betting scandals and attenuated property rights – How betting related match fixing can be prevented in future

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Abstract

Recently, a number of high-profile betting scandals have shocked European football. Since such scandals threaten the integrity of the sport, which is one of its major assets, football officials have taken prominent measures to avoid further scandals. Unfortunately, these measures have not yet been successful. Additional or different measures seem to be necessary to protect the integrity of the sport. In this paper we analyze the economic causes of betting scandals from a property rights perspective. The analysis consists of three parts. First, we show that after a continuous attenuation of property rights over the last decades, football fixtures and results today are a costless input for the business model of the large industry of bookmakers and betting platforms. In the second part, we explain the economic responses of the betting industry to the property rights attenuation and the resulting facilitation of betting scandals. In the third part, we evaluate three alternative solutions to the problem: taxation, regulation, and property rights allocation and enforcement. The third approach is especially promising and has been successfully used in other industries as well.

Keywords: Property Rights, Attenuation, Betting, Scandal, Match fixing, Corruption

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1. Introduction: Betting scandals as outrage on the integrity of football

Various game manipulation scandals have shocked European football in recent years (Koch & Maenning, 2006). Very few of them are caused by exaggerated athletic ambitions. In contrast, fixed matches primarily serve the monetary interests of criminal individuals. In most cases, they use the existing global betting channels to gain high profits. In 2009, the so far largest European football betting scandal was detected by an international investigation under the leadership of the German Public Prosecution Department in Bochum (Gibson, 2009). More than 200 games in nine European countries were under strong suspicion of being manipulated. In addition to various games in six European first division leagues, up to twelve matches of the UEFA Europa League and three of the UEFA Champions League were allegedly affected by fraud. In every case, the match fixing approach pursued by international betting ring followed a similar pattern (Hill, 2009). The cheaters bribed players or referees to manipulate the results of the games. At the same time they placed bets on the outcome of those matches. As the paid bribe was only a fraction of the gained winnings, it was a highly profitable business for the perpetrators. After the detection of the cheating, the court in Bochum convicted the leader of the betting ring Ante Sapina and a few of his partners in crime to more than five years in jail (Becker, 2011). But for professional football, the prevention of betting scandals is a lot more important than the prosecution of individuals. The collapse of various professional Asian football leagues in the last 15 years is a warning example to people in charge of European football. For example, the professional football leagues in China, Singapore and Malaysia were embroiled in extensive game manipulation scandals. Sponsors withdrew money and spectators declined to buy tickets after plenty of match fixings became public. The championships had to be suspended and have not yet recovered (Hill, 2010).

The economic importance for professional football institutions and strong public interest has made game manipulation (in the context of betting) and prevention measures a highly interesting field of research. Preston & Szymanski (2003) classified game manipulation alongside doping and sabotage as one form of cheating in contests. The causal relationship between game manipulation and betting was shown by Strumpf (2003), Winter & Kukuk (2008) and Wolfers (2006). Subsequent researchers tried to identify the reasons for match fixing and describe the consequences. Hill (2010) identified certain qualitative prerequisites for match fixing in an extensive study. Bag & Saha (2011), Caruso (2009) and Forrest, McHale, & McAuley (2008) on the other hand developed empirical models for the economics of match fixing. Each of the articles gives recommendations for how to prevent

(betting related) manipulation scandals in future. The main focus of the existing qualitative and quantitative models however is the decision by any individual whether to fix a game or not. With our paper, we contribute to the literature by taking a new perspective. In this article we add a property rights view to the problem of betting related match fixing. We show how the critical property rights of sports betting were attenuated over the last decades. This development has led to strong negative externalities for professional football. With (1) a regulation solution, (2) a taxation solution and (3) a market solution, we discuss three different theoretical approaches to reduce the negative externalities and effectively prevent betting-related match fixing in future. The example of football betting hereby is particularly useful as football is by far the number one sport in sports betting (Forrest & Simmons, 2003). The results can be transferred to others sports as well.

The remainder of this paper is structured as follows. Section two describes major milestones in the history of football betting and proves the attenuation of property rights in that context. Section three explains the resulting externalities for sports institutions and their impact on value creation. Section four evaluates the three different theoretical solutions to the problem. Section five summarizes the results and gives an outlook on further potential research.

2. The attenuation of property rights in the history of betting

Betting on sport events has a very long tradition in human history. The earliest examples of sports gambling date back to betting on horse races by the ancient Romans (Lanciani, 1892; Sauer, 1998). Since its early beginnings, betting has been considered to be a complementary product to the sports event itself. Fans can show their commitment to their favourite team by placing bets on the outcome just as they might buy a team souvenir (Forrest & Simmons, 2003). By the end of the 19th century, the growing popularity and emergence of professionalization of football – especially in the UK – drove it to become the number one sport to bet on (Munting, 1996).

The underlying business idea of sport betting providers has always been very easy. The outcome of major, mostly recurring, sporting events like football championships serve as input for their offerings (Forrest, 2006). Without these events, betting providers wouldn't be able to sell a marketable product. Betting providers share this dependence on the platform *sport* with other stakeholders of football institutions. For example TV stations can only sell football-related pay-TV-packages if they are able to broadcast live games and merchandising shops at the stadium can only sell team jerseys if the originals are used by the players during

games. Although the situation is comparable at first glance, the betting industry plays a special role. This is mainly caused by the different situation with regard to property rights. In the economic context, these property rights grant the exclusive authority to use a specific good, retain the earning out of it or transfer it to others (Alchian, 1977; Milgrom & Roberts, 1992). In the case of football, TV stations and local merchandising shops sign contracts to obtain, at least temporarily, certain property rights from the governing football institution. The TV stations acquire broadcasting right packages while the merchandising shops pay the rent for their stores. These property rights entitle the companies to use the outcome of football as input for their products. The betting industry however does not actively acquire any property rights from the football institution. This is due to the different input needs of TV stations and merchandising shops compared to the betting industry. The event of the match itself is the needed input for TV and merchandising. The property rights of the event are clearly owned by the football institution and easy to defend. With their householders' rights at the stadium, they can restrict the access to those who have paid for the processing of the match. For the betting industry, the fixtures and results of football games are sufficient as input for their offerings. The property rights hereof are not clearly allocated to anybody and can be utilized for free.

The usage of results and fixtures by the betting industry and the property rights situation has evolved over the years. A few factors have had a major impact on the development. A first factor is the development degree of football including the sophistication of the organization of the football championships. The evolvement of media and the technological progress is a second factor. This factor has a major influence on how easy interested people can access football and football betting. A third factor is the types of offered bets. In addition, the legal status of betting in a country has had an impact on the evolvement of football betting.

The following examples give an understanding of the development of football betting and the resulting property rights situation at three different points in history.

End of the 19th century: First football betting

Betting on football dates back to 1872 (Sharpe, 1997). Football itself was in a very early development stage. In this year, the first official football contest, the *FA Cup,* took place in the UK. Only 15 teams participated in the championship, playing in several rounds without a regular fixture schedule. After less than a total of 20 games, the Wanderers FC beat the Royal Engineers in the final to win the first title. The early betting activities took place mainly

around the stadium as the flow of information by that time was very slow. Neither the telephone nor other modes of electronic communication had been invented. Newspapers were the only type of media reporting on games. Football betting had just started. Although betting was not officially legal, unofficial bookmakers were the first to backhandedly offer bets on these games (Munting, 1996). Their number and offerings were very limited, though, due to the small number of providers and the sporadic frequency of games. The use of the property rights with respect to fixtures and results for betting purposes was not really attenuated.

Mid 20th century: The growth of football betting

By the 1960s, football made significant progress with regards to professionalization. The legalization of players' salaries and especially the introduction of regular fixtures in a league structure were important. After the British had been the first to professionalize the football league at the turn of the century, other European leagues followed. The German Bundesliga was among the last to establish a professional league in 1962. The distribution of the radio and later the invention of TV made football accessible to all people in each of the countries. Growing football interest and the emergence of a fan culture also increased the demand for betting possibilities. With the *football pools* or *TOTO*-betting, a second form of betting was introduced (Munting, 1996). In this form, all placed bets are summed up in a pool and the winners share the money of the pool less charges. While the UK liberalized its betting market in 1961, it stayed under governmental control in most other countries. In Germany for example the governmental-owned TOTO-society was founded to help finance the redevelopment of sports after the destruction of World War II. By that time, betting lost its local character and became a national issue. People from the northern part of a country were now able to bet on games in the south and watch it on TV or listening to it on the radio. The number of bets and the number of bookmakers or pool offerings grew. The results and fixtures were now used by significantly more and geographically independent betting providers and bettors than at the end of the 19th century. The property rights were moderately attenuated.

Beginning of the 21st century: Globalization of football betting

Today, football is a global industry and the number one sport in the world. After the professionalization of all major leagues in Europe, pan-European championships like the European Cup – now called the UEFA Champions league – were introduced and further expanded. Football matches nowadays are globally broadcasted. For example, the 2010

UEFA Champions League final was watched by 145.1 million spectators worldwide (Reuters, 2011)

An important factor in the globalization of football was the invention of the internet. Information and results of every game are now available everywhere in the world. But the introduction of the internet has also had many profound effects on football betting options Firstly, a third type of betting evolved early in the 21st centrury (Laffey, 2005). *Betting platforms* like betfair.com offer the possibility for everyone to become a "bookmaker" (Davis, Leyland, Shapiro, & Watson, 2005). Specifically, every registered user can offer a bet on any game in the world and bettors can take up the bet and bet against it. Secondly, a wider variety of betting options emerged, such as so-called 'in-play' bets. The instantaneous communication potential of the internet allowed people not only to bet on final results, but on specific events during a game (e.g. on the first free kick, the first yellow card). Thirdly, national legal betting restrictions that still exist in most of the European countries can be easily bypassed through global online betting possibilities.

With this development, the property rights finally lost touch with the local nature of a single football game itself. The fixtures and results are used by so many different betting providers that property rights have to be seen as completely attenuated. Table 1 summarizes the findings of the three examples:

	End of the 19th century: First football betting	**Mid of the 20th century: The growth of football betting**	**Beginning of the 21st century: Globalization of football betting**
Development of football	Cup games without regular fixtures	Professional leagues and cups	Professional leagues, cups and international championships
Media and technological progress	Newspaper only – no telephone, etc.	Radio and TV	Internet
Legal situation	Illegal	Legalization in some countries	Legalization in many countries – legal restrictions mainly ineffective due to

			online betting possibilities
Betting forms	Bookmakers – betting on final results	Bookmakers & pools – betting on final results	Bookmakers, pools and platforms – betting on final results and single events
Betting business	Local	National	Global
Property rights	Not attenuated	Moderately attenuated	Strongly attenuated

3. Betting scandals as externalities for professional football

The widely attenuated property rights cause a specific behavior by participants, which was described by Garret Hardin in the context of public goods in his 1968 article as *tragedy of the commons* (Hardin, 1968). The author states that in a situation with multiple individuals who are acting independently in favor of their own interest, there will be an over-use of the public good leading to economically inefficient behavior. This happens even though it might be clear that it is not in anyone's long-term interest. In our example, each of the betting providers will try to capture as much of the global market as possible to maximize their profit. The resulting actions by each single betting provider leads to facilitation of betting scandals, which might result in a long-term downfall of the overall betting market.

A first action of betting providers to maximize their profits is a strong increase of the number and variety of betting offerings. With football results being a public good, the variable cost for offering a single new bet is very low compared to the overhead costs (e.g. spending on betting website marketing). Although expansion of betting offerings may harm the overall market price in a long run, the existing market liquidity allows single providers to increase offerings in the short-run without significant impact on the overall market prices. Therefore, every provider will increase the number of offered bets to the maximum extent. The consequence is a broadening of betting products including some that are highly interesting for match fixers. A good example is the introduction of bets on single games instead of the constraint to bet simultaneously on a series of matches as was common in governmental owned TOTO-offerings. Single games are a lot easier to manipulate than a set of four to five matches. With the introduction of in-play bets on single events within a game,

the situation became even more uncontrollable. It is very hard to prevent or detect the fixing of an event like giving a first yellow card in a game to a specific team.

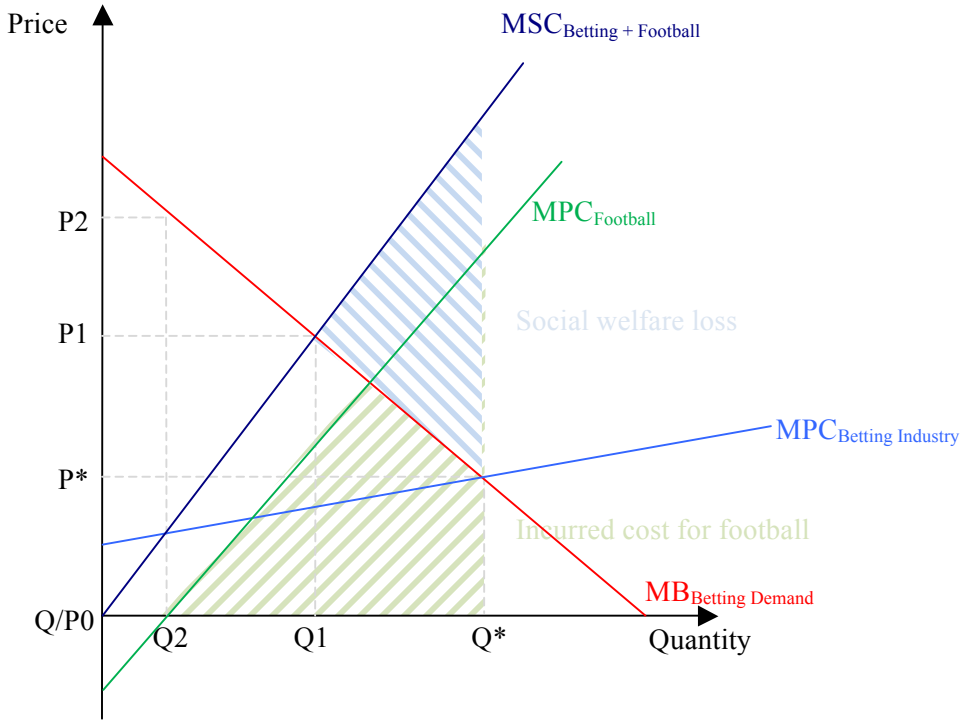
A second action of betting providers to gain market share is tearing down restrictions like the stake limits. Some betting providers, especially in Asia for example, now offer bets without any limit on the placed stake. The possibility to bet high sums considerably increases the chance of misuse by match fixers as the ratio between a potential gain and the paid bribe can be significantly enhanced using the same good odds.

In the end, the extensive usage of the public good by the betting industry highly increases the likelihood of match fixing and thus harms the betting providers themselves in a long run. If customers expect the chance to win a bet is not determined by the strengths of the different teams in a sport event but rather is fixed, they will refuse to place any more bets.

The facilitation of match fixing by the betting industry also has a huge impact on the input- providing football institutions in the form of negative externalities (Forrest, 2006). The external costs can be divided into direct and indirect costs. Among the direct costs are costs of necessary prevention measures against match fixing, including the costs of the investigation of match fixing and the potential cost for compensation of disadvantaged teams. After the detection of several occurrences of match fixing, some national and international football associations tried to set up an early warning system to prevent and detect match fixing. For example, the German football association DFB started cooperating with the Norwegian company Betradar, which analyzes the movement of odds and the amount of money betted on specific games (Welt, 2005). Later, the UEFA came up with the Betting Fraud Detection System (BFDS) to monitor suspicious games (UEFA, 2009). A well-known example of compensation costs for disadvantaged clubs is the payment towards the Hamburger SV after the referee Hoyzer manipulated a cup game in favour of the opponent SC Paderborn in 2005. To forego a long sports tribunal trial for reintegration of the HSV in a running championship, the German football association DFB agreed to a settlement and paid nearly €2m in compensation to the club (Süddeutsche Zeitung, 2007). As a *quid pro quo*, the DFB sued Hoyzer for the same amount. The court awarded damages of €0.75m, of which €0.13m had to be paid by the referee on a monthly basis over a period of 10 years (Stuttgarter Zeitung, 2008). Even more severe for football institutions are the indirect costs of betting scandals. The adverse effect on the reputation of football and the resulting consequences, is a major but realistic threat to the long-term success of professional leagues. By the mid of the 1990s, some Asian leagues – for example, Indonesia, China, Malaysia and Singapore – were suspended after extensive match fixing caused a strong decline in spectator and sponsor

interest (Hill, 2010). In some cases, professional football has not yet recovered since. In Europe, betting scandals have similar consequences, although not to that extent, to date. Shortly after the Hoyzer scandal, a representative survey by the respected German Institute for Opinion Poll in Allensbach showed that one third of all survey participants thought that bribing of referees is a widespread issue (Welt, 2005). In the Italian Serie A season 2006/2007 the average number of spectators dropped by almost 20% compared to the seasons 2005/2006 after a large Italian match fixing scandal became public (Weltfussball, 2011).

The economic situation and consequences for football institutions can be plotted as in graph 1. This simplified graph also serves as basis for the subsequent explanation of the different solution approaches in the next paragraph.



Graph 1: Current situation of betting market

The current situation is defined by the equilibrium between the private marginal costs of betting providers ($MPC_{Betting\ Industry}$) and the demand curve given by the marginal benefits of bettors ($MB_{Betting\ Demand}$). The private marginal costs for the offering of bets and especially the gradient of this curve are relatively small. After the initial investment in the platform, the nature of fixtures and results being a public good keeps the variable costs of betting offerings very low. This equilibrium at Q^* and P^* however neglects the external cost for the football institutions described by the marginal private cost of football institutions ($MPC_{Football}$). This curve has a very steep gradient which is mainly driven by the growing external costs for football institutions. The above described inefficient behavior leads to an increasing chance of

betting scandals as the number of betting offerings grows. It starts however below zero as football might benefit from the complementary product of betting in the very beginning. The overall marginal social costs ($MSC_{Betting + Football}$) build the sum of the marginal private cost of the betting providers and the external marginal private costs for the football institutions. The current situation with Q* and P* produces an inefficient solution. The marginal social costs are higher than the current market outcome. A triangle of social welfare loss arises. In addition the current equilibrium leaves the total amount of external cost in form of the larger second triangle with the football institutions.

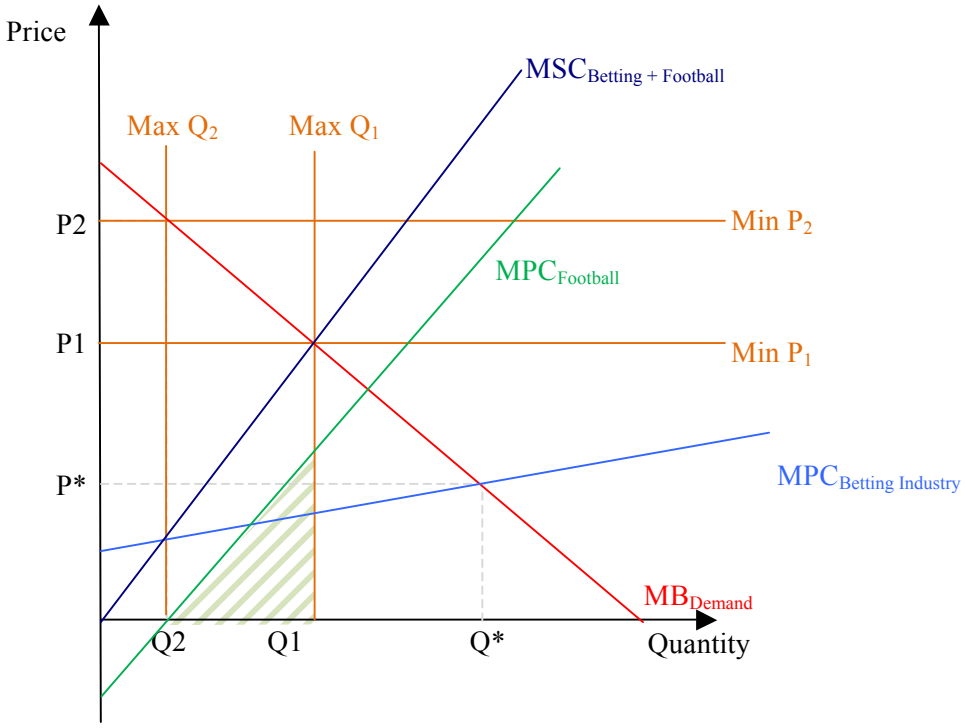
4. Economic evaluation of solution approaches

The literature proposes three different approaches to reducing the occurrence of externalities (Coase, 1960; Randall, 1972): (1) Direct regulation, (2) taxation and (3) allocation and enforcement of property rights. Each of these three measures tries to recover market efficiency by reaching a social optimum, in which the social welfare loss equals zero. The intersection of the marginal benefit of demand curve and the marginal social cost describes this social optimum. In graph 1 this situation is described by quantity *Q1* with the price *P1*. Although this equilibrium might be desired considering all market participants, it is not necessarily optimal for the fighting of betting scandals or their negative consequences for football institutions. Match fixing would still take place and football would still bear the costs. In the following paragraphs we therefore apply the three theoretical solutions not only in view of the social optimum, but also with regard to the optimum outcome for the game of football and its institutions (*football optimum*) and a complete elimination of betting scandals. These two situations are not necessarily the same. The football optimum is the condition in which football no longer suffers from direct or indirect cost. In graph 1 this situation arises at quantity *Q2* with a price *P2*, where the marginal private costs curve of football institutions meets the baseline. Although match fixing is not fully eliminated at this point, the advantages from the complimentary product of betting equals the disadvantages of betting scandals. Unfortunately the market is not yet efficient at the coordinates *Q2* and *P2*. A complete elimination of betting scandals is only possible if the solution approach enables a quantity of zero. As long as there are any betting possibilities, betting scandals can never be fully excluded.

A. Direct Regulation

The basic idea of a regulation approach to reduce negative externalities is for the government to set certain limits and provisions to balance the inefficient free market mechanism (Bergstrom, 1976). In our case of football betting, the government can restrain the quantity of bets by requiring, for example, certain stake limitations or by prohibiting in-play bets or other match fixing relevant betting offerings. Alternatively the government could set very high minimum prices to achieve the same reduction in quantity, as there would be not sufficient demand for the high priced bets. The economic consequences are shown in graph 2.

If the limit is set moderately to *Max* Q_1 or *Min* P_1, the new equilibrium is the social optimum and all social welfare loss is gone. However it is not yet the optimum for the football institutions. They still have to carry the costs illustrated by the shaded triangle without getting any reward. In order to reflect the football optimum in the governmental limit, the quantity *Max* Q_2 or price *Min* P_2 is necessary. Here the marginal private costs for the football institutions equals zero. Therefore, to fully eliminate betting scandals (set the quantity to zero) the regulation would need to prohibit all kinds of bets in general.



Graph 2: Regulation of betting market

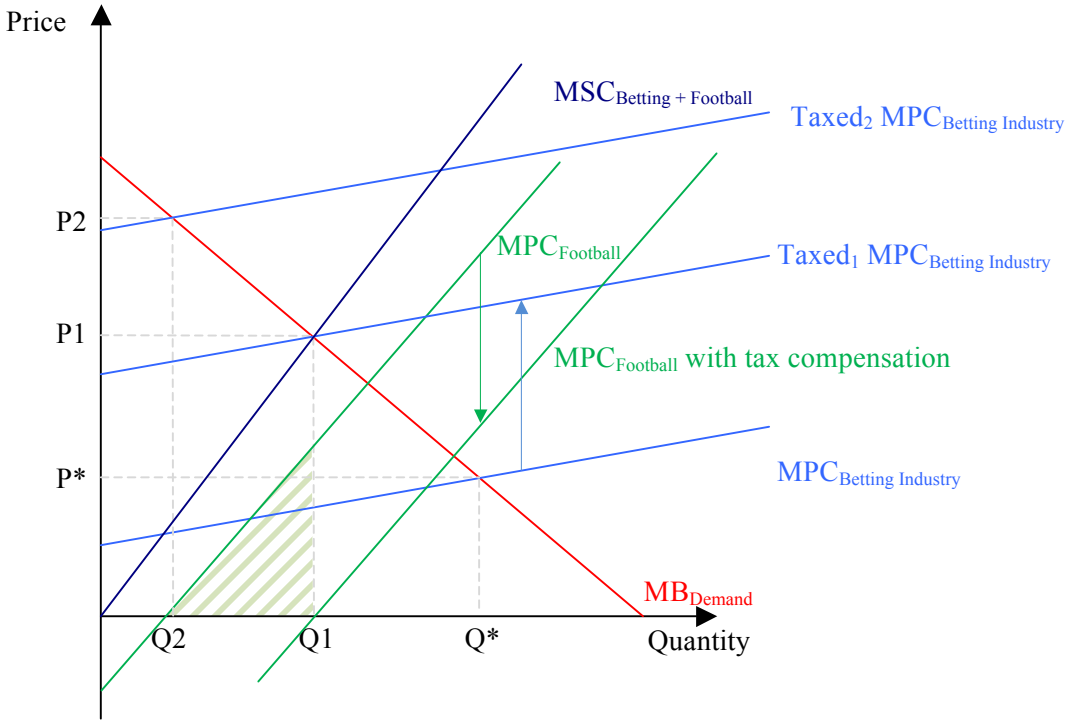
Betting is already a highly regulated market with lots of limitations in many countries. But direct regulations by the government unfortunately cannot achieve the desired results from the perspective of football institutions with regard to fighting betting scandals due to different reasons. First, it is hard for the government to judge the market and set the correct

limits. No government can estimate the marginal private cost curve of football or betting providers. It is very unlikely to reach the desired equilibrium. Second, the government will always aim for the social optimum rather than the football optimum. Although football has a high status in society, politicians are unlikely to neglect the interests of the job-creating betting industry nor the people in the society who buy the bets. Third, the introduction of regulation by the government of one country only leads to a migration of betting providers to countries without restrictions. A uniform global regulation seems very unlikely due to differing interests of different countries. Fourth, regulations only have an impact if they are monitored and enforced. As the betting market is very inestimable, a high amount of governmental expenditure would be necessary. It is very doubtful whether governments are willing to spend their limited funds on such a project.

B. Taxation

The basic idea of a taxation approach is to impose a tax on an activity that generates negative externalities (Baumol, 1972; Pigou, 1978). The tax increases the marginal private costs and creates a new equilibrium where – if the tax is set correctly – the market outcome is back to efficiency. In our case of football betting, the tax needs to be levied on the usage of football fixtures and results. The betting providers have to pay a duty for the allowance to offer bets. Alternatively a tax could be imposed on every offered bet or on every bet sold.

This tax shifts the marginal private costs curve of the betting providers upwards as shown in graph 3. The extent of the shift equals the height of the tax. Every marginal increase in tax moves the curve upwards, reducing the welfare loss to the society and the external cost for football institutions. Once the tax equals the marginal private cost of the football institutions, the new marginal private cost curve of the betting industry ($Taxed_1$ $MPC_{Betting\ Industry}$) meets the equilibrium of the marginal social costs of sports betting and the marginal benefit curve of demand at quantity *Q1* and price *P1*. To reach the football optimum, the tax needs to be set even higher ($Taxed_2$ $MPC_{Betting\ Industry}$). The cost for the football institutions are reduced to zero at *Q2* and *P2*. A valid alternative to such a large tax rise is to remain in equilibrium *Q1/P1* and hand the collected tax over to the football institutions as compensation payment. This shifts the marginal private cost curve of betting institutions downwards ($MPC_{Football}$ with tax compensation). The football institutions accept betting scandals but receive a damage payment which covers the direct and indirect cost of match fixing. An elimination of all betting activities can be achieved by setting the tax to the maximum, so that nobody is willing to pay the price for the betting offerings.



Graph 3: Taxation of betting market

Various gambling tax approaches are already in place in countries around the world (Paton, Siegel, & Williams, 2002; Smith, 2000). The clear advantage of the taxation idea is the chance of the government to combine the social optimum with the optimum for football. Unfortunately a complete hand-over of all collected taxes to the sports institutions as compensation payment does not necessarily take place. In addition, taxes were not yet able to efficiently fight the negative externalities of match fixing due to various reasons. Firstly, a tax does not necessarily stop the expansion of those bets that are critical for match fixing. If a tax is imposed equally on all betting offerings, the betting providers will not remove exactly those bet types that facilitate match fixing. Because the demand for in-play or single match bets seems to be higher than for offerings requiring simultaneous bets on at least four to five games, the wrong betting offerings are diminished. The risk of match fixing remains more or less the same. Second, taxation has no influence on all match fixing facilitating behaviour of the betting providers. The cutback of the limitations of stakes for example can hardly be stopped by that approach. Third, because no government knows the exact benefit curve for demand, the private cost curve for the betting providers or the social cost of the football institutions, it is hard to perfectly set the tax to abolish the external cost for football. Fourth, similar to the regulation approach, in the global betting business, national taxation does not change the overall market problem. The implementation of a tax by a single government induces a market shift to offshore havens without the betting tax or. It is very unlikely to get a

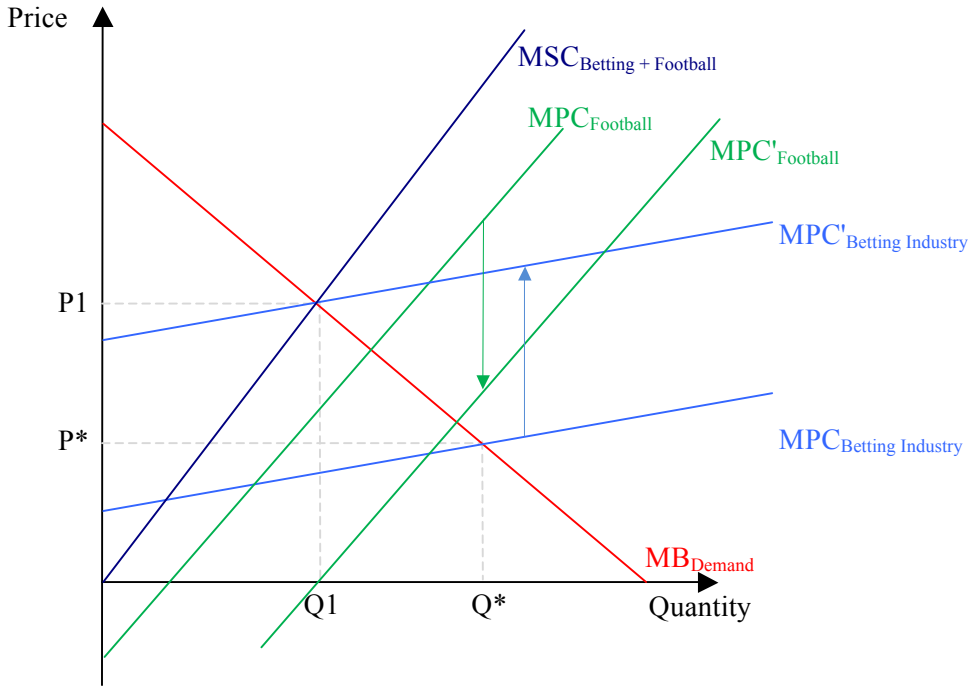
global taxation on betting offerings due to the different interests of the various countries. The costs for an introduction of a new or higher tax however would not be very high as the infrastructure already exists in most countries around the world.

C. Allocation and enforcement of property rights

The approach of allocating and enforcing property rights is based on the Coase Theorem (Coase, 1960). The basic idea is that two parties can solve problems of externalities by negotiating a Pareto-efficient solution, if the transaction costs are very low. The prerequisite is a clear allocation (including enforceability) of the property rights to one of the two parties involved, in which it does not matter which party finally owns the property rights. In our case, it seems natural to allocate the property rights at the producing football institutions rather than the exploiting betting providers. Football institutions and betting providers can now negotiate on a price for the usage of fixtures and results.

As shown in graph 4, the price for betting rights packages increases the private marginal costs of betting providers. The respective curve shifts upwards ($MPC'_{Betting\ Industry}$). At the equilibrium with *Q1* and *P1* the social optimum is reached. While the marginal cost for the betting industry rise, the marginal cost for the football institutions falls in the exact same amount as they receive in compensation payments ($MPC'_{Football}$). The marginal social cost curve remains unaffected. The football optimum is equal to the social optimum in this case. If the football institutions are able to negotiate an even higher price, they can gain a certain surplus from the betting market. Every resulting quantity lower than *Q1* gives a surplus to football institutions as the marginal cost curve is below zero. To reach a quantity of zero and achieve a complete elimination of betting scandals, the football institutions simply have to

stop selling any property rights to the betting industry.



Graph 4: Application of Coase-Theorem to betting market

This approach has a high potential to help fighting the external cost borne by football institutions. Dietl (2010) was among the first to propose the idea of allocating the property rights with regard to football betting. Currently, various leagues like the German Bundesliga are preparing similar procedures (Lentze, 2011). From a research perspective, all prerequisites of the Coase-Theorem are fulfilled and successful implementation in practice is achievable. First, fixtures and results can easily be seen as intellectual property of the football institutions. They develop the fixture schedule, own the rights on the club names and also deliver the results with their games. As a second step, the football institutions can officially announce the selling of a betting rights package similar to the current practice of broadcasting rights. This procedure also helps to keep the transaction costs very low as an official announcement will easily bring together all interested betting providers with the football institutions. The betting providers can now bid on the (exclusive) package. The football institutions will allow only those types of betting that do not bear a high risk of match fixing or ask for a higher price. In the end, one or more betting providers will sign a contract and become the official betting partner(s). Against all other – now unofficial – betting providers, the football institutions can enforce their copyrights on the fixtures and results. In contrast to governmental intervention, this enforcement is not limited by national borders as intellectual property rights or copyrights are internationally protected for example by international trade agreements like the *Agreement*

on Trade-Related Aspects of Intellectual Property Rights of the World Trade Organisation (WTO). The football institutions can copy the example of the music industry. This industry enforced their property rights on songs for example with warning letters and show trials against illegal file downloading. In the short run, this enforcement will cause costs for the football institutions. They will need to invest a large portion of the money gathered by the package prices to defend their property rights. This process will take quite a while to change the habits of the industry. The total costs for the football institutions will remain on a high level for a longer period. But once enough show trials demonstrate the seriousness of the approach to the betting industry, the new system will be accepted and (almost) all of the payments flow to the football institutions.

5. Conclusion

Betting related match fixing and the resulting public scandals are a major threat to the integrity of football. Football institutions have already attempted various measures to fight the problem. Unfortunately the existing actions have not yet been able to eliminate the problem. Whereas the current research mainly focuses on the individual's decision whether to cheat or not, this paper argues based on a property rights approach. Since it early beginnings, the fixtures and results of football matches have been a free input to the business model of the betting providers. However, the overall property rights situation has changed dramatically over the last 150 years. Whereas football betting was once a very local business and property rights were not attenuated, the property rights have been more and more attenuated due to technological advancements and the professionalization of football. Today, football betting is a global industry and property rights are completely attenuated. The betting providers have reacted with a strong expansion of betting possibilities, including some that can increasingly facilitate match fixing. The resulting betting scandals are externalities for football institutions. To fight the occurrence of these external costs and bring back market efficiency, the literature proposes regulation, taxation or the allocation and enforcement of property rights. The analysis showed that neither regulation nor taxation is able to help football institutions. The Coase-Theorem based approach however is very promising. The allocation of property rights to the football institutions enables an efficient market which is optimal for both the society and football.

The analysis of the betting problem from a property-rights perspective provides a new perspective to better understand the occurrence of betting scandals. The related discussion of the various theoretical solution approaches showed a possibility to overcome the problem and

find an efficient answer from an economic viewpoint. This article sets the foundation for further research. Among other topics, it would be interesting to empirically evaluate the consequences for the betting industry for example by comparing it to other industries like the music industry.

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