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European lottery markets in the eighteenth and nineteenth centuries: The institutional origins of syndicate play in Spain

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Abstract: Available evidence indicates that since the second half of the nineteenth century Spain has ranked among the heaviest lottery countries in the world. The article contends that syndicate play can account for this outcome. In order to explain the institutional determinants that made syndicate play to emerge and become an institutionalised social practice in Spain but not in any other lottery country, the article narrates, with the help of agency theory, the development of European lottery products (*lottos* and *Klassenlotterien*) and markets since the eighteenth century up to the end of the nineteenth century.

Keywords: lotteries, Spain, Austria, Germany, Italy, agency theory, syndicate play.

Traditionally, lotteries have been very popular in Spain. In 1999, Spain was the fourth country in the world in terms of lottery sales as a percentage of GDP (Garret, 2001). In 1995, however, it ranked first, as it was also the case in 1962 among OCDE countries. In the 1930’s lottery consumption was the highest in Spain and, finally, as I will shown in this article, already in the second half of the nineteenth century Spain was the heaviest lottery country in Europe.¹ In other words, in spite of all the dramatic economic, political, social and cultural changes that Spain has experienced since the second half of the nineteenth century up to the last years of the twentieth century, it

seems that Spain has strived very consistently and successfully to spend more money than any other country in lottery tickets. To put it differently, if in purely economic terms lottery purchasing is not strictly rational, it should be concluded that the Spaniards have been, at least at this regard and for the last one hundred years, the most irrational people in the world.

The purpose of this article is to explain this outstanding attraction of the Spaniards towards lotteries. Contrary to neoclassical economic theory I claim that lottery demand is not exclusively driven by wealth considerations. This is to say, that on top of the incentive to win a big prize or the potential thrill or pleasure that lottery players might derive from participating in the game, other institutional factors have to be taken into consideration when trying to explain cross-country differences in lottery sales. More concretely, I claim that the Spaniards have been, for more than one hundred years, the most attracted to lotteries because of the way they participate in this game: instead of buying lottery tickets on an individual basis, Spaniards traditionally buy and share lottery tickets with friends, co-workers, relatives, or acquaintances. I will call this way of playing the lottery ‘syndicate play.’

Syndicate play originated and rapidly extended in Spain in the second half of the nineteenth century, when the country took a deviant path, regarding lottery spending, on which it travelled along for the last one hundred years, making Spain the heaviest lottery country in the world. As we will see later, whereas at that time syndicate play was rather uncommon in other European countries, in Spain it became an habit or a custom, an institutionalised social practice that has remained unaffected in spite of all

the drastic political, cultural and socioeconomic changes that have marked the recent history of the country.

In order to explain why syndicate play became an institutionalised social practice in Spain but not in any other country I will build an analytic narrative (Bates,1998), whose aim is to describe and explain the sequences which characterize the evolution of European lottery markets from the appearance of the first public lotteries in the 17th century up to the last half of the nineteenth century, when syndicate play originated and rapidly extended in Spain. This narrative will be historical and comparative, and it will be built on agency theory (Jensen and Meckling, 1976) . This approach will let us elicit the preferences and strategies of the actors involved, particularly of the lottery promoters, players and vendors, as well as the institutional constraints that limited the set of actions they could take. As we will see at the end of the article, the emergence and extension of syndicate play in Spain was not an intended or expected outcome but the result of a succession of different decisions taken by the actors involved in the lottery market, each of one trying to take the most advantage from the game. Before turning to this narrative, however, it should be made clear how, when compared with individual play, syndicate play increases lottery spending.

Syndicate play and lottery spending

Basically, there are three mechanisms that explain how syndicate play increases lottery participation and, thus, lottery sales. First, once syndicate play has become instrumental for strengthening the interpersonal ties (of loyalty, dependence, friendship, fellowship,

kinship, or whatever), that define the social networks from which syndicates originate, syndicate players have an incentive to keep on playing since otherwise their behaviour could be interpreted as group disloyalty. Group conformity, then, helps syndicates to self-perpetuate and make syndicate players to play more often and, thus, to become heavier players than individual players (Rogers and Webley, 2001).

Second, on top group conformity mechanisms, non members might be also willing to join a syndicate to prevent the possibility that their friends, relatives or co-workers scale in the social ladder while they are left behind. In this case, joining a syndicate resembles very much the minimization of regret action model (Ferejohn and Fiorina, 1974), since joining is certainly the best action one might take to prevent this distressing possibility. Finally, and most important, syndicates also operate as part time lottery sellers, making participation more available to the public. Given the impulsive character of lottery purchase (King, 1985), syndicates, then, increase participation and, thus, total lottery sales.

As an habit, custom or institutionalised social practice, syndicate play is a good candidate to explain how, and spite of the socioeconomic, cultural and political changes that have taken place in Spain since the second half of the nineteenth century, lottery sales have been exceptionally high in this country. Now it is time to explain the development of the European lottery markets, which will help up to understand why syndicate play was most extended in Spain already in the nineteenth century.

Lottos and Klassenlotterien

In terms of agency theory a lottery is a contract between the players (principal) and the lottery promoter (agent). For this contract to take place the promoter has to try to convince the players that he is not going to behave opportunistically. This basically implies giving assurance to players, first, that draws are going to be performed honestly and with no delay, and second, that the amount and size of prizes will not be altered after the draw and that winners will be able to collect them promptly.

Most contemporary lottery draws are not open to the public but broadcasted and the press, independent officials or professionals, such as public notaries, give assurance to the players about the honesty of the draws. To obtain the same result, the first state lottery promoters opened draws to the public, so everybody had a chance to examine the whole operations. Also, in the case of central European lotteries, and in order to enhance the players confidence, all tickets were drawn, which made the draw ceremony to last days or even weeks. All over Europe, then, lottery draws gave an opportunity to common people to challenge or question the behaviour of high ranking public officials, a quite unthinkable practice in any other social context in the times of the Ancient Regime, when lotteries flourished as a permanent source of fiscal revenues.

The lack of mechanisms lottery players had to monitor the behaviour of state lottery agencies, affected something more important than the operations of draws, however: it affected the design of lotteries. Most contemporary lottery are, in terms of the industry, 'non-risk lotteries.' With these lotteries prizes are a share of total lottery revenues and, thus, the promoter does not face any risk of meeting with a loss. Also, in the case of

non-risk lotteries, players can not know in advance the amount of the prizes they would get were they fortunate, since that depends on the proceeds the promoter has been able to collect. This kind of lotteries, however, would be unthinkable in the last decades of the Ancient Regime period. Given the natural and grounded suspicion among common people towards treasury officials and tax collectors, most people would not play a lottery whose prizes were determined *a posteriori*, according to the receipts that lottery officials claimed had been collected. In other words, to successfully operate a lottery in the last decades of the seventeenth century the size of prizes had to be fixed in advance. If this was so and prizes were independent of sales, lottery promoters run the risk of meeting with a loss

Ancient Regime lottery promoters, however, had to face another source of risk, represented by the third party in the operation of a lottery: the official lottery vendors. In terms of principal-agent theory, vendors are the agents of the lottery promoter and, as such, they might be tempted to behave opportunistically, cheating the promoter, the players, or both. To sum up, to successfully operate a lottery in times of the Ancient Regime, the promoter had to (1) design lotteries that minimized the chances of facing a loss when operating a lottery with fixed prizes, and (2) minimize the chances lottery vendors had to behave opportunistically.

Two kinds of lotteries, originated in the seventeenth and eighteenth centuries, dominated the European market up to the second half of the twentieth century: the *lotto*, mostly operated in Southern Europe and the *Klassenlotterien*, dominant in central Europe. These two lotteries offered fixed prizes and, in different ways, were designed

and operated looking at, and trying to reduce the incentives lottery vendors had to behave opportunistically.

Lottos were first played in Genoa where, periodically, five new members of the Great City Council (the *Serenissimi Collegi*), had to be elected by lot from a pool of 90 candidates. Bets were placed on the names of these candidates and later on some Genoese bankers and traders set up their own lottery companies which eventually were merged and taken over by the Genoese city government as a state monopoly.² In accordance with its origins, *lotto* players could bet on one or more numbers (between one and 90), and in each draw five numbers were drawn. The possible bets players could place were the *estratto semplice* (when the player bet on one number), the *estratto determinato* (the player bet on one number and also on the position of that number among the five drawn numbers, stating, for example, that the number 12 was going to be the first to be drawn), the *ambo* (the players selected two numbers), the *terno* (three numbers were chosen), the *quaterno* and even in France the *cinquina* (the player selected four and the whole five numbers, respectively).³ Since the probability to win a *estratto semplice* is one out of 18, a *lotto* would be a fair lottery if winners could collect 18 times the amount they had bet. But *lottos* were not set up to entertain the public and instead of 18, they received less: 15 in France, Brussels, Prussia and Bavaria, 14 in Austria, 13 in Naples and only 10 times their stakes in Spain, the difference being the profit margin of the promoter. To better illustrate the design of this lottery, Table 1 shows the prize structure of some *lottos* operated at the end of the eighteenth century.

Table 1. Prize structure of some European *lottos* in operation at the end of the eighteenth century.

Bets	Prizes (as a factor of the amount of money staked)							Probabilities
	France	Brusse ls	Prussia ^a	Bavaria	Naples	Austria	Spain	
<i>Estratto semplice</i>	15	15	15	15	13	14	10	1 / 18
<i>Estratto determinato</i>	70	75	75	75	n.a.	67	50	1 / 90
<i>Ambo</i>	270	270	270	270	266	240	220	1 / 400.5
<i>Terno</i>	5,200	5,300	5,300	5,400	5,142	4,00	3,966	1 / 1,748
<i>Quaterno</i>	7,000	60,000	60,000	60,000				1 / 511,038
<i>Cinquina</i>	1,000,000							1 / 43,949,268

Sources: Leonnet (1963, p. 111), Bigwood (1912, p. 40), Warschauer (1885, pp. 6 and 12), Macry (1997, p. 130), Koch (1908, p. 80), Bauer (1997, p. 44), and for Spain, the prize structure corresponds to that determined by the Royal Order of 27 June 1764.

^a The Köln and Hamburg *lottos*, both of them set up in 1770, offered the same prizes as the Prussian *lotto*. See, Grojtan (1923, p. 10) and Predöhl (1908, p. 38).

Let us imagine now a *lotto* vendor who has received a *terno* bet. Knowing that the probability for that *terno* to win a prize is one out of almost twelve thousand he could very safely withhold this bet from the *lotto* administration and put away the player's money as a personal profit. To prevent this, *lottos* were operated under the system of the printed receipts. This worked in the following way. First, the player placed his bet at the vendor's office and received a temporary receipt of the bet (*rescontro*). The vendor, then, gave notice about this bet to the central *lotto* administration, and the latter printed and sealed a final receipt (*biglietto*), and sent it back to the vendor. On his side, and since only these printed and sealed receipts were valid titles to claim a prize, the player had to return to the vendor's office to pick up his *biglietto*. In this way, vendor had less chances to deceit either the players or the *lotto* promoter, and the latter could displace the task of monitoring *lotto* vendors to the former.

The system of the printed receipts served another important purpose, however. *Lotto* promoters could operate the lottery at no risk if all bets or betting combinations were uniformly distributed among the 90 numbers. On the contrary, the more concentrated were bets on certain numbers, the more risky was the whole operation. It usually happened, however, that players concentrated their bets on certain numbers. They could,

for example, bet on the date the king had died, or they could follow the advise of a popular cabalistic printout. To reduce this kind of risks, *lotto* operators closed overbet numbers. This is to say, if already many bets had been placed on certain numbers, more bets on those same numbers were not accepted. Thus, for example, the first French *lotto* closed a number for a *estratto semplice* bet when 6 000 livres had been already been placed on that number (Leonnet, 1963, p. 120). Certainly, by closing numbers *lotto* operators could still meet with a loss, but at least they could put a limit on the size of that loss in every draw.

Responsible for the operation of closing numbers was the *castelletto* department. *Castelletto* officials scrutinized every bet combination a player wanted to place, according to the information provided by vendors, and accepted it or not on the basis of the accumulated bets that had already placed on that combination. If accepted, the *biglietto* was printed and sent to the vendor for the player to pick it up. In sum, under the system of *castellettos* and final printed receipts, *lotto* operators could both prevent opportunist behaviour on the side of vendors and reduce the financial risks accruing from operating a lottery with fixed prizes.⁴

The operation of *lottos*, then, was not a simple matter: it took a significant amount of time and employees working in the *castelletto* and printing departments to be put into practice. Originated in Genoa in the seventeenth century and first extended to the relatively small states of Northern Italy, *lottos* could be managed efficiently with the help of a single central office. When *lotto* was introduced in bigger states, such as Austria (1751), Prussia (1763) and France (1776 –*Loterie Royale*), it was operated on a regional basis.⁵ This meant that each region held its own draws and also staffed its own

castelletto and printing departments. Operated on a regional basis, the process of registering bets, sorting them out and printing the validated ones could be better taken care of and, more important, a higher frequency of draws was possible. In sum, by decentralizing *lotto* operations, bigger countries could better monitor vendors and avoid the concentration of bets on a few numbers and, thus, make the *lotto* a relatively safe and efficient tax.

Contrary to Prussian, French and Austrian *lottos*, the Spanish *lotto* (1763-1862) was operated in a centralized way. In spite of the strong and repeated recommendations of the first Director of the Spanish *lotto*, who wanted to decentralize its operations by setting up *lotto* organizations in Barcelona and Cádiz, the Spanish Treasury completely refused to follow suit (Herrero, 1992, p. 61). This refusal was inspired by political reasons. At the end of the seventeenth century, the Spanish Treasury was attempting to rationalize and centralize the whole fiscal system and setting up *lotto* offices in different regions run contrary to this project. Thus, for its whole history, the Spanish *lotto* was operated from its headquarters in Madrid. This refusal to decentralize the *lotto* had important consequences.

Lotto operators all over Europe were aware that in order to remove any kind of suspicion on the side of players, it was necessary that those whose tickets had not been accepted were given notice of this *before the draw day*.⁶ In Spain, however, since most of the bets from the provinces arrived to Madrid shortly before the draw day, *castelletto* officials had a very difficult time when trying put into practice this provision. They could, at most, register all bets, but it was impossible to screen them out properly and close numbers. Eventually, less than a year after the first draw of the Spanish *lotto*, the

castelletto had given up: since the whole operations were centralized and it was hopeless to try to screen out all bets carefully, print the accepted bets and send them back to the provinces at due time, the Spanish *lotto* administration ended up accepting all bets (Herrero, 1992, pp. 141-2). In sum, whereas in any other *lotto* country, players had a limit on the amount they could bet on every betting combination, Spanish *lotto* players were allowed to bet as much as they wished.

The Spanish *lotto*, then, was operated more hazardously. Sooner or later it could happen that a lucky heavy player had to be afforded an exorbitant prize, up to the point of endangering not only the financial situation of the *lotto* administration but of the Treasury itself. Gambling as it was, and unwilling to reduce risks by decentralizing operations, the Spanish *lotto* administration tried to obtain a similar result by squeezing the size of prizes (see Table 1).

Klassenlotterie was the other kind of lottery most widespread in eighteenth and nineteenth centuries in Europe. *Klassenlotterien* were (and still are) draw or numbered lotteries: players could not select numbers and they only bought a numbered ticket. Numbered lotteries with cash prizes were derivatives of *blanques* (raffles or ‘lucky pots’ with in kind prizes), used by guilds and traders to dispose of goods hard to sell,⁷ or by city authorities to finance public works, religious buildings or any other project. Like *lottos*, numbered lotteries offered fixed prizes, whose total value was a percentage that of the tickets on sale. Promoters of numbered lotteries, however, could also meet with a loss. This could happen whenever prizes concentrated on sold tickets instead on unsold tickets. Thus to reduce risks and operate the lottery on a sound basis, the promoter had to sell at least as many tickets as to cover prizes plus the running expenses *in the*

announced time. If he was not able to do so, he had two options: either it could postpone the draw day until sales were enough to cover prizes or it could hold the draw at the announced day reducing the amount of prizes in proportion to sales made at that day. One way or the other the lottery promoter undermines his credit *vis-à-vis* the players and, thus, damages the competitive standing of his lottery against those of other lottery promoters. The success of a numbered lottery, the, depends very much on the right calculation of demand: too many unsold tickets represent too many risks. Numbered lotteries, however, had two important advantages over *lottos*. First, since it was unnecessary to register, screen out, print accepted bets and sent them back to vendors, operating costs were much lower. And second, since the lottery vendors were selling end-tickets, it was more straightforward to monitor their behaviour. In principle, and in order to prevent deceit the side of vendors, it was enough to make them return the unsold tickets and revenues from sold tickets to the lottery promoter before the draw day. As it we will see in the next section, however, vendors could still fabricate different strategies to cheat the promoter.

A *Klassenlotterie* is a multiple-draw numbered lottery where players could renew unlucky tickets and play them for the next draw (or *Klass*), which was usually hold one month later. Most *Klassenlotterien* were compounded of at least four draws, which meant that no *Klassenlotterie* could be completed in less than four months. This made *Klassenlotterien* a relatively sluggish kind of lottery. Compared to single-draw lotteries where the promoter is able to collect information right after a draw about any changes in the market and, thus, to conveniently adjust the supply of the next lottery according to the new market conditions, the promoter of a *Klassenlotterie* has to stick to the announced lottery plan or calendar and hold the four or more draws that make up his

Klassenlotterie before trying to adapt to any change in the market. However, even though single-draw lotteries were (and still are) a more adaptable or flexible kind of lottery, *Klassenlotterien* became the dominant numbered lottery in central Europe. This was so because in the extremely competitive lottery market of central Europe where almost every single city and state had its own lottery, *Klassenlotterien* had an important competitive advantage over single-draw lotteries. Whereas with single-draw lotteries players can participate in either the same lottery or the lottery of the neighbouring city or state after every draw, when operating a *Klassenlotterie* there were more chances that once a player had bought a ticket to participate in the first draw, he decided to keep on playing it up to the last one, since the expected utility of participating in a *Klassenlotterie* increased with every draw. *Klassenlotterien*, then, were very much suited for neutralizing the appeal of the neighbour lotteries by enticing players to keep on participating in the game up to its end.

Klassenlotterien were first launched in the Netherlands in the eighteenth century. Since the sixteenth century many Dutch cities and merchants run single-draw numbered lotteries for the most various goals. The use of these lotteries as a fiscal source of revenues rapidly spread all over the Dutch provinces in the seventeenth century, originating a fierce competition among public and private local lotteries. By the beginning of the eighteenth century, when it was already clear that the legal provisions that most provinces and cities had enacted to regulate the market were not effective, the General States of the Dutch Parliament decided to launch a Central Lottery, that would also help to mitigate the consequences of the intervention of the country in the War of the Spanish Succession (1702-1713). Since it was its third try to launch such a lottery, the Parliament asked the general public for ideas. A merchant came up with a project of

a compound or multiple-draw lottery (probably inspired by the work of the Dutch mathematician Huygens on compound probability theory) and in 1726 the first compound lottery or *Klassenlotterie* was launched.⁸ This kind of lottery proved to be extremely successful and in a short period of time single-draw lotteries practically faded away in central Europe. Almost everywhere a *Klassenlotterie* competed against the single-draw lottery of the neighbour country or city, the latter usually ended up launching its own *Klassenlotterie* to remain in the market. Far from central Europe, however, where the lottery market were less competitive, the incentives to operate *Klassenlotterien* instead of the more simple and adaptable single-draw lotteries were less demanding. Thus, in Britain both single and multiple-draw lotteries were equally common (Ewen, 1932), and the latter were never operated in Portugal or Spain (Neves, n.d., p. 45).

It is time now to give a general picture of the lottery market at this period of the European history. For the first half of the eighteenth century most states operated *lottos* as a regular source of revenues. Occasionally, single-draw numbered lotteries were also launched either for charity purposes or as an extraordinary source of public revenues. In the second half of the eighteenth century, however, many German cities and states began substituting *Klassenlotterien* for both *lottos* and single-draw lotteries. They proceeded in this way for two reasons. First, as numbered kind of lottery, *Klassenlotterien* operating costs were lower and profits were less fluctuating than it was in the case of *lottos*. And second, many thought that by substituting *Klassenlotterien* for *lottos* it would be easier to prevent the relatively poor from gambling. Whenever placing a simple bet in a *lotto* was affordable to everybody, it was fancied that poor and working people could be better kept away from lottery playing by abolishing *lottos* and

fixing a high price for the tickets of the new *Klassenlotterien*. The expensive *Klassenlotterien*, then, ended up dominating in central Europe, but as we will see in the next section these new lotteries could not prevent the relatively poor and working people from playing.

On their side, France and Great Britain abolished their state lotteries at the beginning of the nineteenth century. They were the first countries to modernize their fiscal systems (Schremmer, 1989), and since the share of lottery revenues within their ordinary fiscal revenues were almost negligible they ended up dismantling their lotteries (Leonnet, 1963, p. 89; Raven, 1991, p. 380). Belgium followed suit in 1830 mirroring the strategy of Ulysses and the sirens, when the provisional government of the new and independent country decided to renounce to this source of revenues (Houtman-de Smedt. 1997, pp. 159-164).

In the nineteenth century *lottos* were still dominant in southern European countries. Austria, Bavaria, and the Italian states operated *lottos* instead of numbered lotteries. In the Netherlands and the German states, the more expensive *Klassenlotterien* prevailed. Denmark operated both a *Klassenlotterie* and a *lotto* up to 1851, when the latter was abolished. And, finally, Spain, and up to 1861, operated two lotteries: its old *lotto*, and a single-draw numbered lottery, the *Lotería Nacional*, established during the Napoleonic wars. Already at the beginning of the nineteenth century, then, the Spanish lottery market was somewhat peculiar when compared to those of other countries. Whereas in most countries either *lottos* or *Klassenlotterien* were operated, the Spanish Treasury was simultaneously launching both a rather peculiar *lotto* (the only one in Europe that let players to place unlimited bets), and a single-draw lottery, an almost obsolete kind of

lottery in central Europe, but much more adaptable and flexible than the dominant *Klassenlotterien*. As it will be shown in the next section, these two peculiarities of the Spanish lottery market combined in a unanticipated way in the early 1860's, facilitating the emergence and extension of syndicate play and, eventually, making Spain to become the heaviest lottery country in Europe.

The Spanish lottery market. Emergence and extension of syndicate play

As it was mentioned in the second section, with the exception of Spain, and in order to reduce financial risks, all *lotto* countries limited the amount of money players could bet on every betting combination. By placing a limit on the potential losses they could meet at every draw, these countries could operate their *lottos* in a relatively safe way as long as they wished. This explains that even nowadays this old *lotto* is still played in very much the same way in Italy (the *lotto*) and Austria (the *Zahlenlotto*). Other countries, such as the German cities and states (from the second half of the eighteenth century) and Denmark (in 1851), abolished their *lottos* partly because of moral reasons, substituting them by the more expensive *Klassenlotterien*.⁹ In 1862 it was Spain's turn to dismantle its *lotto*. In the case of Spain, this decision was not taken after a careful consideration of its moral or fiscal effects. On the contrary, the *lotto* was dismantled in a rather hastily way, in the same manner a gambler abandons the gambling table when he realizes he is having a run of bad luck.

The events that preceded and explain the decision to abolish the *lotto* in Spain were the following. In November of 1861 a player placed a very heavy bet in a *terno* and won a

small fortune of more than one million pesetas. This was the highest prize ever afforded to a *lotto* player and created a '*lotto fever*' in the country: for the next draws even higher bets were placed. The General Director of the Spanish lottery administration sent letters to *lotto* vendors asking them to recommend heavy *lotto* players to moderate their stakes. The latter did not pay attention to these recommendations and, moreover, the *lotto fever* became more acute when in January another player made a fortune by winning a *terno*. For the draw scheduled for February 1862 even higher stakes were placed on *ternos*. On one *terno* in particular, the accumulated bets were so high that if drawn, the Treasury would have to pay out to players more money than it had been able to collect the former year by issuing new state debt. These concatenation of events could only have taken place in Spain, the single *lotto* country that let players to participate in the *lotto* as heavily as they wanted. Facing such and embarrassing and somewhat risky situation the government finally decided to dismantle the *lotto*.

It did so even though state finances were in a particularly bad shape that year. The 1861 fiscal year had ended up with the highest budget deficit since the 1845 fiscal reform and in 1862 public debt increased by 15 per cent (Comín, 1988, p. 387). Thus, although *lotto* revenues only amounted to 0.5 percent of ordinary state revenues, the government felt it was necessary to reform the another lottery, the *Lotería Nacional*, to try to offset the losses that the sudden dismantling of the *lotto* could generate. The new *Lotería Nacional* plans, however, could not be purposefully designed to meet the demand of working class people since the abolition of *lotto* had been vindicated as a measure to prevent the working poor from gambling. Facing this dilemma the lottery organization opted for a middle-ground solution. First, it increased the frequency of lotteries. If in 1861 the lottery organization was launching 24 lotteries per year, in 1863 it already

launched 35 lotteries. Second, it carefully experimented with new cheaper lotteries, fine-tuning supply and demand by a process of trial and error. Since *Lotería Nacional* was a single-draw lottery these experiments could be undertaken and evaluated every two weeks and thus, already in the summer of 1862 a new combination of expensive and relatively cheaper lotteries was already in the market.¹⁰ In very few months, then, the lottery organization had been able to transform its organizational routines and adapt to the new market conditions that the sudden abolition of *lotto* had created. This flexibility and adaptability of the single-draw *Lotería Nacional* proved to be critical: had the Spanish lottery organization run a *Klassenlotterie* instead of a single-draw lottery, most probably private lotteries would have taken the initiative to meet the demand of former *lotto* players.

Regardless of the introduction of the new relatively cheap lotteries, the abolition of *lotto* made it more expensive and even unaffordable to many working class people to participate in the lottery. Whereas they had been able to play the *lotto* placing a bet of one real, the 1862 cheapest lottery ticket fraction cost four *reales*, and in 1864, in order to make it more difficult for working class people to play the lottery, the same fraction cost ten *reales*. This rise in the cost of participating, however, did not reduce the appeal of the lottery game. On the contrary, since the abolition of *lotto*, lottery revenues and participation steadily increased.

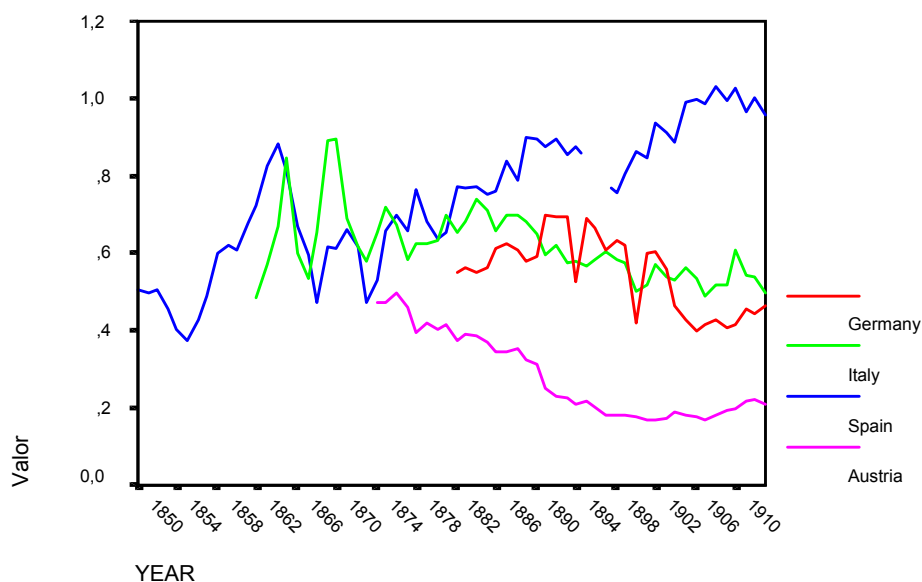
This unanticipated outcome can be explained by the emergence and extension of syndicate play: since many former *lotto* players could not afford to play even the new cheap lotteries on an individual basis but still wanted to participate, they began syndicate playing. The following news release about the people who bought the ten

fractions (at four *reales* each) of the winning tickets of the 18 March 1863 draw summarizes very well this innovative way of playing the lottery: 'Three fractions were bought by a well-to-do gentleman, two fractions by a *syndicate of friends* who have been regularly syndicate playing, another fraction by *an occasional syndicate* of fifteen people, another fraction by a young mat-maker apprentice who is around sixteen years old, another fraction by *a syndicate of three people*, another one by a single person, and the last fraction *among several needy people*.'¹¹ News releases similar to this one just quoted here were abundant in the Spanish press since the abolition of *lotto* and the creation of the relatively cheap lotteries.

Syndicate play, then, first emerged among the relatively poor. Since they did not have any other way of participating in the lottery on an individual basis they turned to their own social networks (where both information about the trustworthiness of each of its members was relatively available and reliable and the threat of punishment for opportunism was most credible), to syndicate play. We can label these first syndicates 'primary syndicates.' This innovative way of participating in the lottery, however, did not confine itself among the relatively poor. In the last decades of the nineteenth century, syndicate play was mimicked by, and extended among the relatively wealthy, giving rise to the 'secondary syndicates,' as they will be named here. Secondary latter syndicates were composed of both the relatively poor and wealthy and contrary to the primary ones, they were not means or instruments to play the lottery when it could not be done on an individual basis. On the contrary, in the case of secondary syndicates, the means-ends relation was inverted, syndicates were not a means to play the lottery, but the lottery became a means or an opportunity to strengthen the set of social ties (of kinship, friendship, dependency, loyalty, or whatever), that defined and made up a

relatively extended social network. Among the lottery winners of the first five Christmas lotteries of the twentieth century there were, for example, the owner of a fusing company who distributed lottery tickets partitions among his relatives, his lawyer and the forty eight employees and workers of his company; a candy store owner, who split up his ticket with his employees and patrons; a wholesaler, who played the same ticket with his partner in Cuba; and a widow of a high social position, who shared her ticket with her doctor, a high rank military officer, her daughter, her son in law and the business partner of the latter.¹² Certainly, the agents or initiators of these secondary syndicates were not people who shared lottery tickets because they could not afford playing on an individual basis. On the contrary, they set up secondary syndicates in order to enhance the interpersonal ties that define the social network within which they hold a central position. Also, as it is shown in Figure 1, it was in the last decades of the nineteenth century, when syndicate play first originated (with the emergence of primary syndicates) and later extended (in the form of secondary syndicates), when Spain took a deviant path regarding lottery spending, becoming the country with the most dynamic lottery market in Europe.

Figure 1. Lottery sales as a percentage of GNP. Most important lottery countries, 1850-1913



Note: Own calculations based on total lottery sales data available in the yearly *Cuentas del Estado Español*, *Österreichisches statistisches Handbuch*, Kugler (1923, p. 147) and Ministero della Finanze (1914, pp. 138-9), and GDP data in Prados (2003, Table E6), Kausel (1979, p. 692) Mühlpeck et al (1979, pp. 676-8), and Flora (1983, vol. 2, pp. 351-2 and 354-5).

As contemporary sources indicate, in the second half of the nineteenth century, syndicate play was relatively uncommon outside of Spain. This can be better understood if we think of syndicate play in principal-agent terms. In these terms, syndicate play might be pictured as a contract between the holder of the official lottery ticket (the agent), and the other syndicate members (the principal), where the former has different ways of cheating the latter: he might claim, for example, that he has split up an official lottery ticket (or an official fraction of a lottery ticket), into ten partitions when he has really made twelve partitions and sold each of them at one tenth of the price of the official ticket (or ticket fraction). More blatantly, if the syndicate's ticket wins a prize, the agent can cash it and refuse to share it with other syndicate members. Thus, since syndicate agents have a chance to behave opportunistically we can expect that syndicate play will be less extended when (1) players can participate in the lottery on an individual basis, avoiding in this way the hazards involved in syndicate play; and (2)

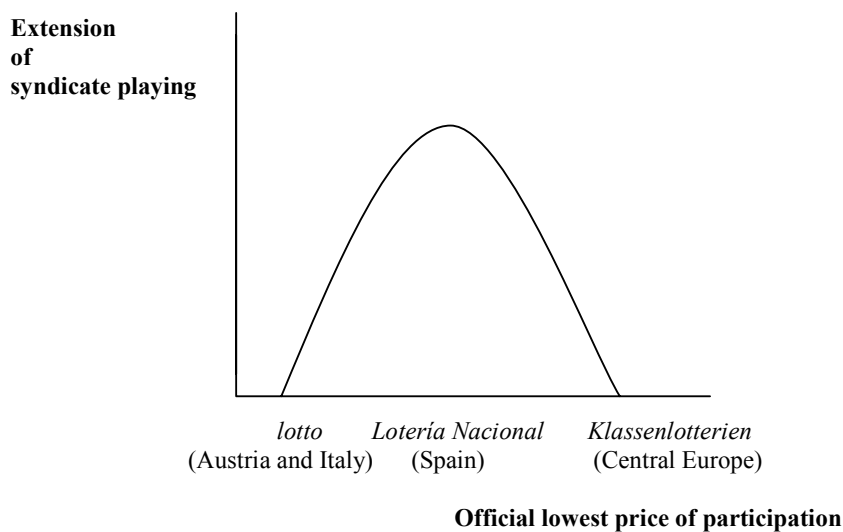
syndicate play informal contracts are discouraged by the lottery organization and unenforced by the courts.

With regard to the likelihood players had to avoid the hazards of syndicate play, this was the highest in Austria and Italy, where participating in the *lotto* was affordable to everybody. Thus, aside from the syndicates purposefully made up to complete a large combination of bets, suggested by one or another cabalistic formula, syndicate play was quite uncommon in *lotto* countries. On the contrary, in Spain and central Europe, the incentives to set up syndicates were higher, since numbered lottery tickets were relatively expensive. They were, however, cheaper in Spain than in the German states. Whereas in 1913, at purchasing power parities and in U.S. dollars of 1970, the lowest ticket fraction of the Spanish *Lotería Nacional* cost 2.8 U.S. dollars, the lowest ticket fraction of the Prussian *Klassenlotterie* (the German lottery with the highest market share) cost almost twice as much (4.8 U.S. dollars).¹³ On their side, Austrian and Italian players only needed 0.1 U.S. dollars of 1970 to participate in the *lotto*. This price differential had important consequences.

Since syndicate play is a form of collective action based on interpersonal trust, the more difficult it is for primary syndicates to emerge the more expensive lottery tickets are, since a larger number of mean players are needed. In other words, when lottery tickets are very expensive, there is a business opportunity for private vendors to split them up into very small partitions and sell them overpriced to those who want to play but can not afford to buy lowest lottery ticket fraction. On the other hand, when participation in the game is neither affordable to everybody, nor so expensive that there is a business opportunity for unofficial vendors to split up lottery tickets and make them affordable to

everybody (as it eventually happened in *Klassenlotterie* countries), then there is market failure and social networks can take the initiative in the form of syndicates of players to facilitate participation to those who can not play on an individual basis. Graphically, we can plot the extension of syndicate play against the lowest official price of participation as function with an inverted U shape (see Figure 2): wherever the price of participation was either very low (such as un Austria and Italy), or very high (in central European *Klassenlotterie* countries), syndicate play was not a common social practice. On the contrary, where the minimum price of participation was neither very low nor too high, as it was the case of Spanish *Lotería Nacional* after the abolition of the *lotto*, syndicate play was more extended.

Figure 2. Extension of syndicate play against the official lowest price of participation.



And finally, with regard to the stance of the lottery organizations and the courts towards syndicate play, in *lotto* countries this was not an issue since, aside from the cabalistic syndicates, syndicate play was practically unheard-of (Kanner, 1898, p. 47). In central Europe and Spain syndicate play was a matter of concern for governments and lottery

promoters. And again, the opposing ways this issue was tackled in Spain and central Europe made a difference on the emergence and extension of syndicates.

In the case of Spain, the 1852 and 1893 Lottery Laws did not forbid syndicates. These laws pictured syndicate play contracts as a private matter among syndicate members and, thus, liable to common law provisions. The Anti-Smuggling Law of 1904, however, apparently questioned this tolerance towards syndicate play. This law prohibited 'trading' with merchandises monopolized by the state, such as tobacco, matches, powder and lottery tickets. Since by 'trading' it could also be meant the private partition of a lottery ticket and its distribution to syndicate members, the legal status of syndicate play became shaky. To settle this issue, a few days before the 1909 Christmas lottery draw a commission of representatives of the big industry interviewed with the Minister of the Treasury, since they 'wanted to distribute lottery tickets partitions among their workers and employees.'¹⁴ The response of the Treasury was that there was no crime if 'a private person, a lottery player, or a businessperson sold unofficial lottery tickets partitions to his friends or patrons (...), provided that he did not make any profit from this sale.'¹⁵ Finally, on their side, the Spanish Supreme Court orderings of the second half of the nineteenth and first years of the twentieth century unequivocally established the enforceability of private syndicate play contracts. And the more resolutely, moreover, the more settled was the jurisprudence becoming. Thus, whenever Supreme Court orderings of the second half of the nineteenth century made syndicate agents (this is to say, the syndicate members who kept custody of the official lottery ticket), to distribute lottery winnings only to those syndicate members that had paid in advance their lottery partitions, at the turn of the century it was established that syndicate agents had to share lottery winnings with all syndicate members, once it was

demonstrated that there was syndicate play and even though it could not be positively proved that partitions had been paid before the draw.¹⁶

A different matter was when the syndicate agent was an official lottery ticket vendor. Lottery provisions and Supreme Court orderings established that lottery vendors could not promote syndicate play by splitting up lottery tickets (or official lottery tickets fractions) into partitions and sell them to the players, since otherwise vendors could very easily try to deceive both the lottery promoter and the players. (An official vendor could, for example, split a lottery ticket into ten or twenty partitions, sell them and later return the original lottery ticket to the promoter claiming that he was not able to sell the original lottery ticket). Consequently, the courts established that syndicate members deceived by an official lottery vendor who acted as the syndicate agent were not granted any rights on their share of the lottery winnings.¹⁷ The moral of these provisions and orderings was, in short, the following: those who wanted to play the lottery but could not do so on an individual basis, rather than trusting official vendors they should organize themselves and trust each other (and, eventually, the courts). In sum, both lottery provisions and court orderings facilitated the extension of syndicate play in Spain by making private syndicate play contracts enforceable and, thus, by clearing the way to the transition from the primary to the secondary kind of syndicates. The clearing or facilitation of syndicate play in Spain might be explained for three reasons. First, if syndicate play emerged in an unanticipated way in the early 1860's, at the end of the nineteenth century it was already clear that this innovative way of playing the lottery helped to increase lottery sales. Second, syndicate play was also instrumental for monitoring vendors and reducing agency costs: since players were aware that it was safer to split up a lottery ticket and distribute partitions themselves, vendors had less

chances to deceive the lottery organization. And third, and no less important, syndicate play was facilitated because the prospect of granting the working class and poor people a chance to play the lottery was not so distressing in Spain as it was in central European states.

The fiscal federalism of the unified Germany (1871), preserved the right of the federal states to launch their own lotteries as state monopolies. At the time, however, article 33 of the German Constitution provided for free trade of goods, which also included lottery tickets. Thus, in order to benefit from their right to launch their own lotteries and, at the same time, to restrain interstate concurrence, some federal states pursued a merger strategy. Thus, if at the end of the nineteenth century there were seven *Klassenlotterien* in the German market, in 1912 there were only three (Schmidt, 1912; Kugler, 1923, pp. 86-90). However, since mergers did not put an end to interstate concurrence, promoted by independent traders of lottery tickets partitions, a second strategy (most intensively pursued by Prussia and Saxony, the states with the biggest market shares), consisted of interpreting very liberally (or creatively) article 286 of the German Penal Code, that prohibited private individuals from launching lotteries. And even though the distribution and sale of lottery tickets partitions does not, properly speaking, amount to launching a lottery (since the buyers of the partitions do not play against each other, but together against the lottery promoter), court orderings repeatedly established that it did. Private traders who profited from the partitioning and selling of state lottery tickets, however, had a way to circumvent article 286: if prosecuted they could try to hide profits and claim that they were only facilitating syndicate play by acting as syndicate agents. Syndicate play, in sum, could be used as a legal cover for this private market of lottery tickets partitions which, as it was shown earlier, originated to meet the demand

of the poor and working class people. As a result of this, the partition of lottery tickets, whatever purposes it served, was eventually banned (Rönnenberg, 1907. p. 184), and lottery vendors could only sell lottery tickets to the end players, and not to whom, according to their judgment, could later trade with them or act as syndicate agents (Kugler, 1923, p. 97).

Syndicate play, then, was the loser of this story. The prohibition of syndicate play, however, was not a matter of concern to German state officials since it had always been their policy to prevent the working and poor people from playing the lottery. In fact, had the federal states agreed to reduce the price of lottery tickets, they would have been in a better position to cut down the illegal lottery tickets partitions market and, thus, to increase fiscal revenues. But for all this period of intense interstate competition there was an spoken rule that prevented them from placing themselves at the same level of the lottery tickets partitions traders who, very successfully, did their most to facilitate participation to the working and poor people (Dietrich, 1887, p. 17; Vogel. 1925, p. 431). And this rule, inspired by moral considerations, was honoured.

To sum up, both the relatively expensive price of participation in the *Lotería Nacional* and lottery provisions and court orderings facilitated the emergence and extension of syndicate play in Spain. On the contrary, in *Klassenlotterie* central European states, more reluctant to give the working and poor people a chance to play the lottery, syndicate play was inhibited by both the decision to fix a comparatively higher price for participating in the lottery and the attempt to protect lottery monopolies by impeding any kind of partitioning of lottery tickets.

Concluding remarks

Even though both formal and informal institutions combine to shape economic behaviour (North, 1990), the latter have traditionally received less empirical research attention, probably because they are not so manageable to study (Greif, 1994). This article, however, is focused on the emergence and impact of a informal institution, labelled here ‘syndicate play.’ As an institutionalised social practice, syndicate play affects lottery behaviour. Although syndicate play can give rise to opportunism (from the side of both the syndicate agent and any other syndicate member), when institutionalised it makes potential players compelled to play the lottery with the members of their social networks, in order to prove their own trustworthiness (or test that of the others), and their (sincere or strategic) allegiance to them. More important, by different mechanisms syndicate play increases both participation and the frequency of play, augmenting in this way total lottery sales.

Syndicate play emerged, extended and became an institutionalised social practice in Spain in the second half of the nineteenth century, when the country took a deviant path regarding lottery spending. Since then, and in spite of all the economic, political, social and cultural transformations that Spain has gone through, syndicate play has proved to enjoy that ‘tenacious survival ability’ proper of informal institutions (North, 1990, p. 45), making this country to walk along that same deviant path and to become the heaviest (or among the heaviest) lottery country in the world.¹⁸

Syndicate play emerged unexpectedly in Spain, when in order to offset the losses derived from the decision to dismantle the old and particularly hazardous *lotto* (the only one in Europe that allowed players to place unlimited bets), the government launched new cheaper lotteries of the single-draw *Lotería Nacional*, a kind of more flexible and adaptable numbered lottery than the multiple-draw *Klassenlotterien*, dominant in central Europe. Since these new lotteries were neither as cheap as to allow the poor and working people to play on an individual basis nor as expensive to stimulate the emergence of a lottery tickets partitions market, old *lotto* players began to syndicate play. By the last decades of the nineteenth century, syndicate play extended to all echelons of society, becoming an instrument or a means to strengthen social ties. This extension was facilitated by lottery provisions and court orderings, that enforced private syndicate lottery agreements.

In other European countries emerged a different scenario. Austria and Italy maintained their old *lotos*. Since *lotto* participation was affordable to everybody, there was no incentive in these countries for syndicate play. The German states, on the contrary, more reluctant to let the working and poor people to play the lottery, declined to reduce the price of participation, even at the cost of facilitating the emergence of an underground market of lottery tickets partitions. Moreover, in order to disrupt this market the partitioning of lottery tickets, whatever the purposes it might serve, was prohibited.

In sum, a historically contingent combination of organizational, fiscal, legal and also moral factors determined the emergence and later extension and institutionalisation of

syndicate play in Spain, making this country to rank, up to the present, among the heaviest lottery countries in the world.

¹ Comparative data on lottery sales in 1995 in La Fleur and La Fleur (1996). For 1962 lottery sales data are available in the Portuguese Report to the 4th Congress of the International State Lotteries Association. Also, per capita lottery sales data in the 1930s in Klein (1934, p. 148). GDP data have been collected from World Bank's reports.

² See Roreto (1853, pp. 97-104). For a different account of the *lotto* origins, see Bellhouse (1991).

³ I am using the original Italian *lotto* terminology.

⁴ After the Napoleonic wars the system of *castelletos* and *bigliettos* was substituted by the lottery tickets stub books or French system. This development will not be explained here since it does not affect the main argument of this article.

⁵ See Leonnet (1963, p. 25), Bauer (1997, p. 42) and Warschauer (1885, p. 18).

⁶ Otherwise, it could well happen that players with winning but, not to their knowledge, invalidated tickets received no prize. Not paying their prizes to winners is, surely, the most expedient way of killing a lottery.

⁷ See Schama (1987, pp. 307-10) and De Marchi (1995).

⁸ See Fokker (1862, pp. 120-141), and Houtman-de Smedt (1997, pp. 70-72). On the work of Huygens, see Todhunter (1865, pp. 33-4).

⁹ The Catholic Bavaria did also dismantled its old *lotto*, but it did not replace it by any other lottery in order to prevent the working class people from gambling. That a Catholic country renounced to all kinds of lotteries from fifty years (1861-1912), when its protestant neighbors of Northern Germany very consistently and successfully tried to sell in its territory their own lotteries, should lead us to be more skeptic about the widely held idea (see, for instance Landes, 1998, cap 12XX) that compared with Catholics, Protestants are less prone to use lotteries as a source of public revenues.

¹⁰ Data on these new lotteries schemes are available in *Gaceta de Madrid*, the official Spanish government daily.

¹¹ My emphasis. The quote comes from *El Enano*, 24 March 1863. *El Enano* was a weekly devoted to lotteries, whose editor was a high rank official of the lottery administration.

¹² See *Los cinco gordos del siglo XX*. Madrid, 1906.

¹³ Exchange rates of national currencies into 1970 U.S. and purchasing power parity have been calculated from Kausel (1979, p. 713) and Carreras (1989, p. 563). Data on participation prices in Italy, Prussia and Spain are available in Majorana (1932, p. 36), Kugler (1923, 116) and the official daily *Gaceta de Madrid*, respectively.

¹⁴ See Proceedings of the Spanish Parliament (*Diario de Sesiones del Congreso*), 1909, number 47, p. 1515.

¹⁵ Internal Circular of the Ministry of the Treasury of 10 November 1910.

¹⁶ See Supreme Court orderings of 12 December 1873, 26 May 1890, 24 April 1904, 6 October 1906 and 19 January 1909.

¹⁷ See Supreme Court ordering of 3 March 1871.

¹⁸ Nowadays, 50 per cent of the Spanish lottery players syndicate play on a regular basis, and for Christmas this percentage increases up to 70 per cent. Data in survey number 1779 of the Centro de Investigaciones Sociológicas.

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