

An investigation into gaming machines in licensed betting offices: exploring risk, harm and customer behaviour.

A View from the Machines Research Oversight Panel

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Machines Research Oversight Panel (MROP)

MROP is the governance body comprising independent academic experts located outside of Great Britain who have some expertise in either gaming machine research or using gambling research for policy. Our remit was to evaluate the objectivity and quality of this programme of research investigating gaming machines in licensed betting offices (LBOs). More details of MROP can be found at www.responsiblegamblingtrust.org.uk.

Background

The Responsible Gambling Trust has commissioned a number of independent organisations to carry out a series of scoping, contextual and evaluation studies into gaming machines in licensed betting offices (LBOs). The purpose of these studies was to gain an understanding of the behavioural patterns and characteristics of gaming machine play. The overall objective was to obtain empirical data identifying potential indicators of harmful patterns of play based on industry-held data. The Report findings will be used to better inform the implementation and future impact of effective responsible gambling policies.

The specific research questions, as set by the Responsible Gambling Strategy Board (RGSB), were:

- *Can we distinguish between harmful and non-harmful gaming machine play?*
- *If we can, what measures might limit harmful play without impacting on those who do not exhibit harmful behaviours?*

To achieve its objectives, the RGT adopted a two-step approach;

1. Scoping the theoretical markers/metrics of harm, and evaluating the type of player-tracking data held by industry-operators. This was intended to determine if relevant markers of harm can be identified, and;
2. Exploration of industry-held transactional data linked to information obtained from loyalty card players to validate harmful behavioural patterns of play.

Featurespace (in collaboration with RTI international), and NatCen conducted Reports 2 and 3 that focused on linking patterns of play to Problem Gambling Severity Index (PGSI) scores. These organisations have strong reputations as trusted and independent social research teams. Although the gaming industry has vested interests in the outcome of this research programme, the data quality and reliability checks that were applied by NatCen and Featurespace, and the involvement of multiple researchers in analysing the data provide a strong layer of confidence in accepting the integrity and reliability of the Reports' findings.

It is important to highlight the substantive and world-leading contribution to our understanding of problem gambling made by the Reports. Despite examples of researchers gaining access to single industry operator data, the RGT programme represents the first collaborative endeavour between multiple industry operators and independent researchers. Blaszczynski, Ladouceur and Shaffer (2004) argued for the need for stakeholder collaboration data sharing as the fundamental requirement in informing and evaluating public policy. The RGT has effectively achieved this.

The unique contributions of these Reports are made not only by mapping out aggregate patterns of gaming machine play in relatively large samples, but also in directly linking data to individual loyalty card players and the degree of their gambling involvement and problem gambling status.

These Reports are of outstanding significance and their findings provide an excellent foundation to build upon, extend and direct further inquiries.

Data Source

Inspired Gaming and Scientific Games machine suppliers provide the raw industry-held player data covering a ten-month timeframe (September 2013 to June 2014) related to five major bookmakers:

1. Betfred
2. Paddy Power
3. William Hill
4. Coral
5. Ladbrokes



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Acknowledging Limitations

Each of the Reports includes a clear statement of the limitations of the data obtained, and the caveats that need to be recognised in interpreting the analyses.

- It is apparent that there are difficulties arising from the different methodology used by operators in recording information related to player and transaction details.
- The Reports acknowledge the absence of operational definitions of key variables. These include, but are not limited to, determining what constitutes a session of play, and correlating sessions to loyalty card use rather than individual players; the Reports have used proxy measures as best estimates. This state of affairs is inevitable given the type and nature of the data obtained. Nevertheless, with continued refinements in data analyses, the accuracy of these estimates in approximating true parameters will increase.

Identifying Relevant Markers

Prior to proceeding with any data analyses, Report One undertook a review of the literature to identify markers of harm. The Report correctly concludes that currently there is no accepted definition of 'gambling-related harm', and notes that there is a great diversity in the harms experienced by gamblers. The nature and severity of gambling-related harms sustained by individuals, both acutely and chronically, are dependent on their personal, financial, socio-economic and familial circumstances. These circumstances differ between individuals and vary within individuals across time making the construct of harm difficult to effectively measure. Accordingly, the strategy adopted was to attempt to identify patterns of play that probabilistically indicated the presence of harmful patterns of play.

1. *Between session metrics:* Frequency and duration of gaming machine play, net expenditure, level of play engagement, number of activities undertaken, and indices suggestive of chasing.
2. *Within session metrics:* Number and type of games played, debit card payment, reloading and switching, debit card decline, variability in staking behaviour, use of repeat bets/autoplay, simultaneous multiple machine play, stake size, game volatility, and cash-out, and;
3. *Contextual metrics:* Interactions with staff, staff identified irrational/aggressive behaviours, venue location, within-venue play location, and other behaviours.



The Report includes a very useful summary table of the relative rankings (high, medium, low, or unknown) of each of the metrics against the Bradford Hill criteria.

The authors conclude that:

1. Although there are plausible markers of harm, there are no reliable single markers that can sufficiently and robustly identify harm without adequately contextualising these to an individual's present circumstances.
2. It is evident that further exploration is needed to determine which multiple markers in combination can be used to increase the strength, specificity and sensitivity of markers of harm.

The metrics used were also analysed in relation to machine location in Government Office Regions defined regions within Great Britain, social deprivation using the Index of Multiple Deprivation, census-derived population distributions, and time related data (time of day, days of the week, and the month played).

Contextual Research

A number of complementary studies exploring patterns of play, density and distribution of machines, player understanding of return to player information, and the relationship between arousal, stake size and impulsive decision-making were conducted. These Reports were designed to contextualize the findings of the three core research projects. Data derived from these studies provided important and original insights revealing potential patterns of harm associated with characteristics of play. In summary, regional differences in machine play and social deprivation point to possible vulnerable at-risk populations. Variations found in stake size and expenditure by time of day and day of week, coupled with differences in duration of sessions and losses between B2, B3 and mixed B2/B3 patterns of play provide useful data identifying when and how losses are incurred. This information can be used to guide more targeted policies. Similarly, evidence that demonstrates players do not fully comprehend or understand return to player messages has implications for more effective player education. The experimental study evaluating the role of stake and prize size on within session loss of control point to the need to further unravel the intricate relationship between physiological arousal, inhibiting responses and impaired decision making. For example, findings that participants made more impaired judgments in a decision-making task at either the £20 or £2 per spin level, suggest the need to investigate the effects of multiple factors in combination rather than placing reliance on single variables in explaining player behaviour and impaired judgments.

The importance of these contextual studies lies in the fact that they have offered unique insights into different patterns of who, where, when and how players behave on gaming machines. Building on this foundation is necessary to achieve further gains in knowledge that will lead to effective policy developments.

Linking industry data to loyalty cards

Featurespace and NatCen linked industry data to individual loyalty cards. This represents a world-first study. The primary finding of this study is that it answered the first research question by demonstrating that it is possible to distinguish harmful patterns of gaming machine play.

The causal relationship between machine play and problem gambling status is complicated. Players meeting criteria for problem gambling typically engage in multiple forms of gambling. Accordingly, it is not clear what effect changing machine configurations (stake size for example) will have on player substitution effects (that is, players switching to other forms). This requires a more holistic and coordinated approach by investigating all forms of gambling and determining the impact of certain changes on other forms.

Although appealing at face value, the Report findings suggests that it is naïve to select one variable as the single most effective marker of harm applicable to the majority of gamblers. Again, taking stake size as an example, problem gamblers are found, albeit at a lower rate, among low stake players. This indicates that stake size per se may not be the primary factor causally related to the development of problem gambling. Clearly, there is a complex matrix of interacting variables that contribute to the onset of harms and problem gambling status.

Featurespace applied predictive modeling to maximise the sensitivity and specificity of predicting problem gambling status from index markers of harm. Although a range of markers were found to be effective in distinguishing individuals meeting criteria for problem gambling from non-problem gambling, the sensitivity and specificity remains adequate but falls short of being highly acceptable.

The findings of the predictive analyses confirm the complexities in identifying markers of harm. The implications are that policy makers need to apply trade-offs in determining which combinations of markers are to be used. Some combinations have higher sensitivity in detecting problem gamblers, but low specificity such that non-problem gamblers will be affected. It is not yet known what impact falsely identifying a non-problem gambler as a problem gambler has on player behaviour. This is an empirical question that needs further study.



Conclusions

The RGT has taken undertaken a systematic programme of research that has attempted to determine if harmful patterns of play can be identified from industry data. It ought to be emphasised that the timeframe in which these studies were implemented was relatively short. As a consequence, given time and opportunities, more findings will emerge as further analyses of existing data is undertaken.

The Reports are instrumental in providing evidence that there are patterns of play that can be used to identify problem gambling status. The next step is to determine the nature, severity and chronicity of harms that are associated with problem gambling. Identifying harms that have a serious health and social cost burden will result in more targeted campaigns directed toward high risk and vulnerable sub-populations.

The accuracy of predictive models can be improved given that there is still a considerable amount of analyses that can be undertaken in refining combinations of variables, time permitting.

These data are based on an unrepresentative group of players, that is, players electing to use loyalty cards during play. Approximately 10% of bets are registered plays. The findings indicate loyalty card-holders are more involved players and have high rates of problem gambling and at-risk gamblers. It remains unknown whether unregistered players exhibit typical profiles. Accordingly, policy makers need to be cautious in implementing responsible gambling interventions on the basis of non-representative populations.

Rather than providing clear findings that can definitively inform policies, the Reports attest to the complexities and difficulties in using existing data derived from non-representative samples. The combination of behavioural markers of harm, although able to predict problem gamblers to some extent, currently offers limited sensitivity and specificity to allow effective policies that target only problem gamblers. This means that decisions currently need to be made by regulators in policies that trade-off capturing problem gamblers and minimising interference with recreational players. However, there is considerable opportunity to improve accuracy in future by examining more variables, improving methodological and statistical approaches and developing our understanding of what we are actually trying to predict (i.e., gambling-related harm).

It is suggested that at this stage, it would be inadvisable to rush policies on the basis of these foundational studies. Rather, consideration needs to be given to the development of a strategic blueprint of evaluative studies that are applied in a logical and coherent manner over the next five to ten years. This is not to suggest a 'do nothing' approach in the meantime. The implication is that more will be achieved by a strategic approach compared to fragmented, disjointed and potentially costly policies that fail to achieve their objective.

References

1. Blaszczynski, A., Ladouceur, R. & Shaffer, H. (2004). A science-based framework for responsible gambling: The Reno model. *Journal of Gambling Studies*, 20(3), 301-317.

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