# CRACKING THE CODE OF MOBILE GAME MONETIZATION

// Whitepaper


## Summary

This study provides an independent analysis of how much players spend on mobile games globally. This report sheds light on the spending behaviour of mobile gamers worldwide, through analysing 69m players, 2,873 mobile games, 624 days and $4.7bn of in-game spending. It reveals that there are a variety of ways that games monetise their players, exemplified by four specific types found via cluster analysis. In one of these, a small percentage of players account for a significant portion of revenue in mobile games. Games across all genres and age ratings may belong to this cluster and may rely heavily on the top 1% of their players. The study has implications across game design and public policy.


> ## Full research article
>
> "*The Many Faces of Monetisation: Understanding the Diversity and Extremity of Player Spending in Mobile Games via Massive-scale Transactional Analysis*"
>
> Available here: https://dl.acm.org/doi/10.1145/3582927

## Key Findings

- ***There Are Systemic Patterns in Monetization Across Mobile Games:*** When looking at how mobile games monetize their players, we outline four distinct types. Each describes a specific pattern of monetization.

  > ***Uniform games:*** Spending is distributed approximately equally across players - there is a broadly linear relationship between the cumulative percentiles of spenders and spending. These games are not reliant on highly engaged, heavy-spending gamers for a substantial proportion of their revenue.
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  > ***Sub-Pareto games:*** Spending is distributed more unequally across players than in the Uniform cluster. However, revenue is still not concentrated in the upper percentiles: the top 20% of spenders in these games are typically only associated with 62% of revenue.
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  > ***Quasi-Pareto games:*** Quasi-Pareto games fit typical descriptions of how mobile games monetize: all percentiles of spenders contribute to overall revenue generation, but higher percentiles are substantially more monetised.
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  > ***Hyper-Pareto Cluster:*** In Hyper-Pareto games, the majority of revenue is generated by a small proportion of high-spending gamers. The top 1% of spenders in Hyper-Pareto games generate in excess of 38% of revenue.

- The more a game relies on its top 1% for revenue generation, the more these individuals tend to spend, with simulated gambling products ("social casinos") at the top.
- ***IAP Spending in Mobile Games Is Highly Varied - between Games and between Gamers:*** There are large differences in spending not only between games, but also between players of a game. One casino game in the dataset had its top 1% spend an average of $16,679; another had them spend $49. The lowest-spending gamer in our dataset spent less than a cent in-game; the highest more than $2M. The average spender in a hyper-pareto game spent just $8.26; but the top 1% of spenders in these games tend to spend approximately $1,711.
- ***High Spending Exists in a Subset of Mobile Games:*** We find a small subset of games across all genres, clusters, and age ratings in which the top 1% of gamers are highly financially involved—spending an average of $66,285 each in the 624 days under evaluation

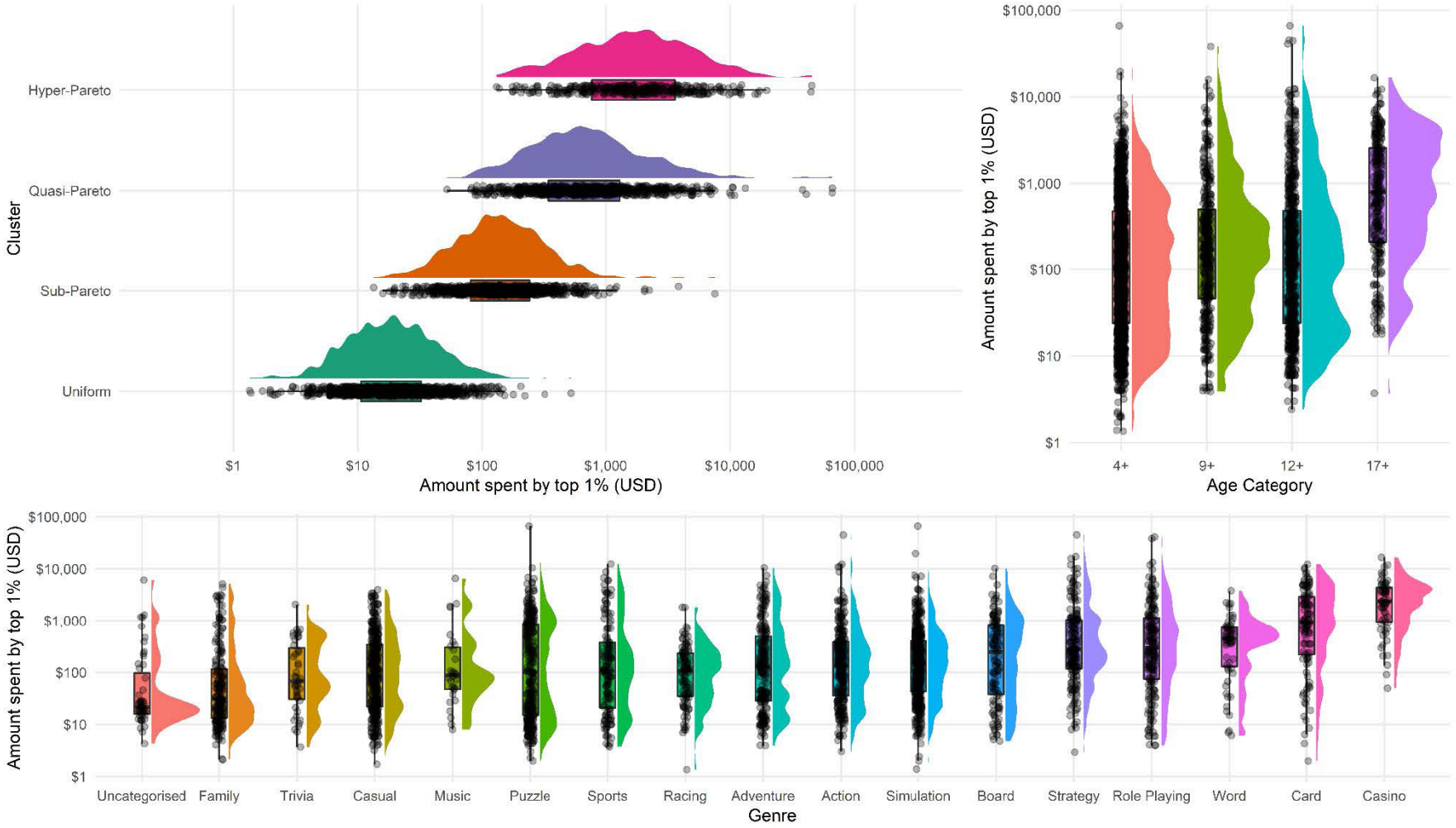


**Figure 1:** Raincloud plots showing the distribution of spending amongst the top 1% of spenders within all 2,873 games in the sample, split by cluster, age category, and genre. A logarithmic transformation is applied to the y-axis to allow the visualisation of all spending. Each data point represents a single game: For example, the most extreme adventure game has 1% of its spenders invest more than $10,000 each; the least extreme has them invest less than $10.

## Implications

The findings of the study have important implications across industry and public policy.

For the games industry, the work presented is the first global breakdown of how in-game spending operates broadly in the mobile games market. Analyses like these are typically locked behind paywalls. Importantly, the study shows that the traditional "minnow-dolphins-whales" model for characterizing player spending in mobile games does not appear to reflect reality for these games in general, with a much more nuanced and diverse set of spending emerging across games. These patterns are further diversified across geographic regions.

The diversity of spending behaviour among players highlights the need for game designers to consider implementing monetization strategies that appeal to the kind of monetization profile they are interested in, with balanced, sustainable strategies potentially being exemplified by the "uniform"-profile.

One of the key insights from the study is that a small percentage of players can account for a disproportionate amount of revenue in mobile games. This highlights the importance of protecting vulnerable consumers from problematic monetization practices that may encourage excessive spending.

For policymakers trying to enact fair and purposeful regulations in the gaming industry, the study provides a crucial piece of evidence to guide decision-making. Based on the evidence presented, it cannot be claimed that all mobile games are problematic in their monetisation. Nor can it be claimed that potentially problematic games do not exist – as the existence of the hyper-Pareto spending pattern indicates. The diversity of spending behaviour among players highlights the need for further research to understand the potential negative impacts of problematic monetization practices. By understanding the diverse spending behaviour of players, policymakers can implement policies that protect consumers, are fair to the industry and promote a healthy gaming ecosystem. Regulators should consider implementing region-specific policies that address the cultural and social factors that influence spending behaviour.

## Limitations

The study has three major limitations:

1. The study does not contain information about the players, e.g., demographics, and it was not possible to estimate the impact of spending on the players. It is possible that someone spending tens of thousands of dollars on a game has the financial capacity to do so.
2. The study does not show how specific in-game monetization mechanisms or design decisions determine specific spending outcomes. Nor does it consider the cultural contexts of game production. The report does not tell us why the top 1% of spenders spend thousands of US dollars in one study, but only 119$ in another.
3. The study uses extraordinarily diverse data but is still unable to represent the entire market. It is unclear how well the dataset will generalize to the global mobile games – or games – market.

## Conclusion

The study provides valuable insights into the spending behaviour of mobile gamers and highlights the importance of understanding spending patterns whether the purpose is to drive sustainable monetization design strategies or to inform public policy. By analysing massive-scale transactional data, we can gain valuable insights into the spending patterns and characteristics of different types of players.

## Please cite as

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