

Analysis of World Game Trends

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How to approach the analysis of game markets data?

Before analyzing Gameco's data, understanding the game market trends are also required to make reliable results since increasing mobile game sales and changing general recognition about games could affect game data. game sales, published years and genres from the given data are used since analyzing these data show what points cause the most effective sales. This analysis shows patterns of game genre preferences for each period. Thus, game sales of each genre for each period are calculated separating sales of each genre and times.

Predictive analysis and descriptive analysis with mathematical analysis are used in this analysis.

Predictive analysis applied polynomial linear regressions to predict future global game sales of popular genres. Descriptive analysis has shown popular genres and growth rates of popular genres in Global, North America, Europe, Japan and other countries.

Preprocessing steps of Gameco's data

Gameco's data doesn't include full game data from 1980 to 2020 and flawed data. Thus, I dropped blank data and very few data attributes in year, genre and sales attributes because such data can make untrustworthy data reports. Game data from 2017 to 2020 are very few, so that was dropped too. Also, puzzle, adventure, strategy and simulation are very few under 4%. These data are integrated together, such as puzzle_adventure and strategy_simulation. After cleaning the data is called vgsales, "Cleaned_vgsales" are created in the excel. Some analyzed sheets are based on cleaned_vgsales.

Process and ways of analysis for Understanding of game trends

Used excel sheets : cleaned_vgsales, Total sales, percentage

Pivot tables usually used for sorting and filtering years, genre and sum of sales with slicers. Global sales in the pivot table are visualized with line chart and trend line. Also, all game sales for each genre are proportionally calculated as sales values divided by total sales in this term because inconstant variability of game sales can't make clear result, and this data collected limited data. Global sales which are separated in NA, EU, JP and OTHER are visualized in pie chart to read how each location sales have increased. In pie chart, each term unit is 9 year. Below the picture (Figure 1.1) has shown EU and Other sales have highly increased as time goes.

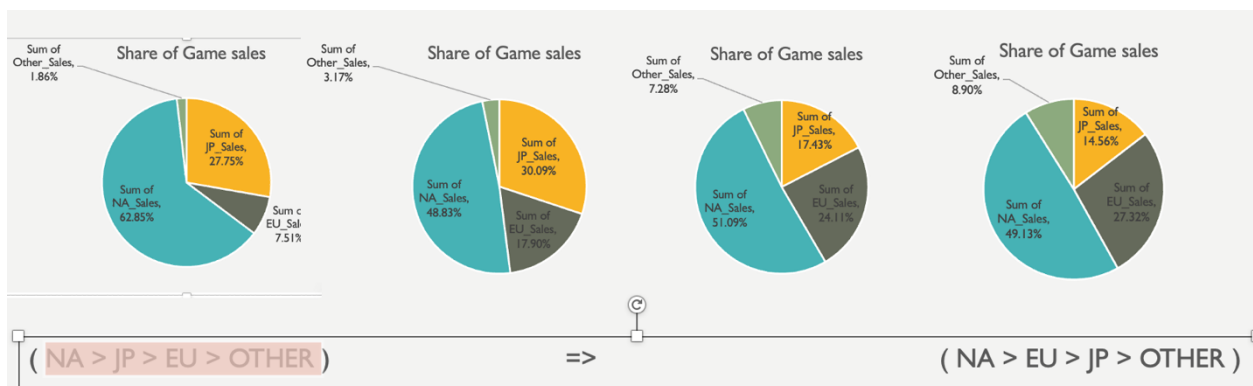


Figure 1.1

we can assume spreading game cultures increase EU and other sales. Through this data visualization, changing occupation of game sales clearly show.

In the analysis of game sales, game sales and genres in upper 75% game sales are regarded as popular genres. In order of that opinion, total sum of Global game sales rank is Action(19.53%), Sports(14.84%), Shooter(11.64%), Role-playing(10.47%), Platform(9.40%) and Misc(9.04%). That rank calculated data in all time, but some genres keep high sales in certain

periods only since past graphic and software technologies are limited to develop evolved game, so some genres are not popular in certain periods. Thus, compounding sales of each genre in separated certain periods can make a more clear result. Time periods separated in two are 1980~1998 and 1999~2016. These two time periods got different popular genres. In 1980~1998, Action, Sports, Shooter, Role-Playing, Racing, and Misc were in upper 75% sales. In 1999~2016, Action, Sports, Shooter, Role-Playing, Racing, Platform, and Puzzle_Adventure were in upper 75 % sales. Action, Sports, Shooter, Role-Playing, Racing are coincidentally popular in two time periods, so these genres are considered as steady seller in global game markets.

Process and ways of analysis for Changing global game trends

Used excel sheets : cleaned_vgsales, percentage, Trend_line and _growth_rate_IQR

To trace what genres are constantly selling from 1980 to 2016, pivot tables and slicer are used to collect detailed data. Sold genres in upper 75%~80% sales are changed every 4 years. That means game genres has different trends every 4 year. Thus, sold genres in upper 75%~80% sales every 4 years are collected, except 1980~1987 since before 1987, the sales don't include all game genres, so the only first term data collected from 1980 ~ 1987. Below figure 2.1 shows how the game trends are visualized.

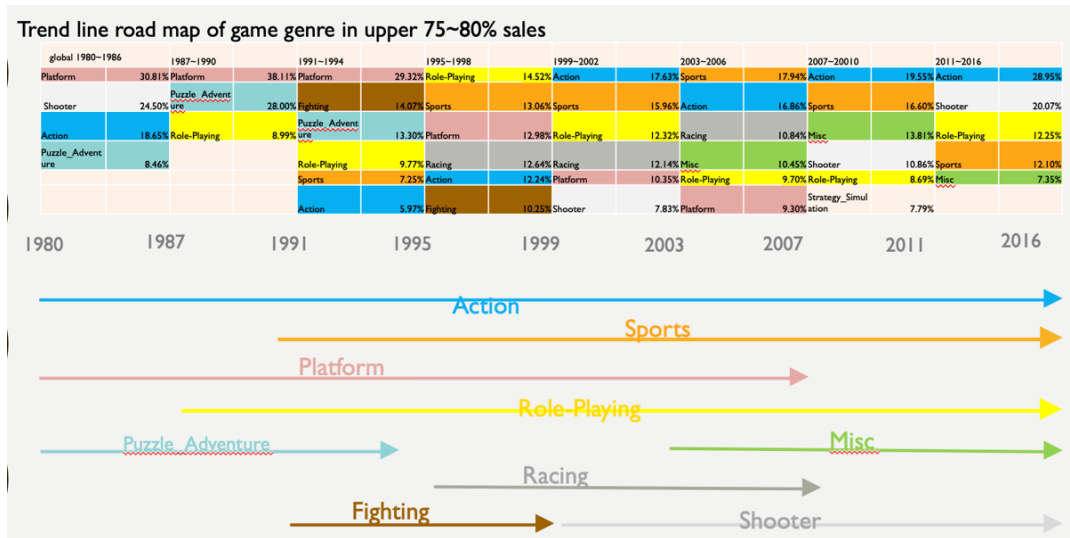


Figure 2.1

Especially, sold length of Action, Sports, Platform and Role-Playing are long. Through fig 2.1, trend lines of genres occupied in upper 75%~80% sales are clearly shown from 1980 to 2016.

Action, Sports, Platform and Role-Playing are considered as steady seller genres in global game sales because these genres found at least 6 times out of 8 terms (75% frequencies of total game sales in 1980~2016). In the descriptive analysis, platform and action genres were popular in early periods. As time goes, platform and action genre decreased until 1998. From 1998 to 2010, action and sports increased again. This predictive analysis used polynomial regression through “add trend line”, so this analysis predicted sales of action and role-playing would be increased more and more, but sales of sports and platform would be decreased.

This analysis also analyzed second tier game genres since the second tier popular games could have possibilities to grow highly as first tier popular game sales. Second tier games have 3 frequencies out of 8 terms. This analysis analyzed other games except first tier popular games in upper 75%~80% game sales. The most popular game genre was shooter in 1980~1986, and then racing was the most popular in 1987~2002. In 2007~2010, misc was the most popular in

2007~2010. In the future, shooter and racing would be increased, and especially shooter have possibility to grow highly. Therefore, action, platform, role_playing, sports, shooter, racing and misc are regarded as genres of averagely high sales.

Process and ways of analysis for Growth rates of game genre -global sales- Used excel sheets : cleaned_vgsales, Trend_line and _growth_rate_IQR

Growth rates of game genres applied interquartile ranges to get growth rates from action, platform, role_playing, sports, shooter, racing and misc because the data which could be in outlier fit for this statistical analysis, and these sales of genres were positively evaluated. Excel used “QUARTILE.EXC” function and bar chart to visualize this growth rates. Time periods separated in two terms, and the results made two different growth rates of game genres in 1980~1998 and 1999~2016. The growth rates rank in 1980~1998 was 1-Platform, 2-Racing, 3-Shooter, 4-Action, 5-Sports, 6-Misc and 7-Role-playing. Additionally, growth rates rank in 1998~2016 was 1-Action, 2-Shooter, 3 Misc, 4-Sports, 5-Racing, 6-Role-Playin and 7-Platform. Comparing the growth rate data in 1980~1998 and 1999~2016 has shown which growth rates of genres increased from 1980~1998 to 1999~2016. Below the figure 3.1 included the data.

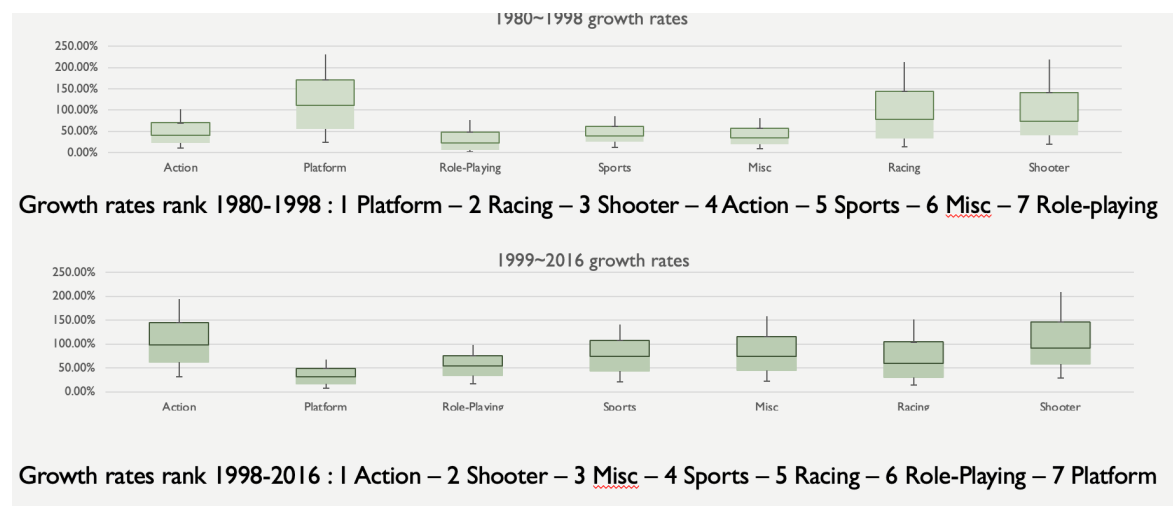


Figure 3.1

The figure 3.1 has shown that growth rates of action, role-playing, sports, misc and shooter have increased.

Process and ways of analysis for Popular game genre in NA, EU, JP and Other

Used excel sheets : cleaned_vgsales, Growth_rate_NA, Growth_rate_EU, Growth_rate_JP, Growth_rate_Other

When it comes to average popular game sales, pivot table and slicer conveniently classified sum of sales per each genre in the four periods, and then this process calculated average sales rates of each genre in NA, EU, JP and OTHER. Sales of genres are under 75~80% are regarded popular genres, and these time periods were divided in 4 terms (1980~1989, 1990~1998, 1999~2007 and 2008~2016). Through the visualized sales graph in NA, EU, JP and Other, forwarding to positive view of game sales for each genre are action, sports and misc in NA, action and shooter in EU, action and role-playing in JP, and action and shooter in Other.

Process and ways of analysis for Growth rates of game sales in NA, EU, JP and Other

Used excel sheets : cleaned_vgsales, Growth_rate_NA, Growth_rate_EU, Growth_rate_JP, Growth_rate_Other

For finding growth rates of game sales each genre, the excel sheet divide 1980~2016 in nine periods, and the analysis applied compound average growth rates into data with "RATE" function. That approaching way have made compound average growth rates of game sales in 8 terms. Even though the growth rates are clear, this approaching way can't make simple results from growth rates for each genre. Thus, compounding each 2 ~ 3 terms again can make better results to understand. Through these steps, they made average growth rates of game sales about 1980~1996, 1997~2004 and 2005 ~ 2016. These growth rates in NA, EU, JP and Other have shown increasing growth rates of popular genres.

Conclusion

This data reports found changing game trends and growth rates in global and in different cultures. From inspected the analysis, some genres recorded high sales in certain periods. That shows patterns of sales for popular genres. From the frequency of recent recorded popular games and high growth rates, rank to get high sales is action, role-playing, shooter and sports in order. Thus, these genres have a high possibility to get high sales.