

ANALYSIS OF VIDEO GAMES SALES IN NORTH AMERICA:2000-2009

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EXECUTIVE SUMMARY

This report provides a comprehensive analysis of video game sales data in North America from 2000 to 2009, focusing on identifying key trends in genre and platform popularity. The analysis extends beyond North America, incorporating comparisons with the Japanese market and global sales figures to provide a broader context.

Key findings highlight that action and sports games were dominant in North America during this period, with notable contrasts in genre preferences when compared to Japan and other global markets. The analysis also includes a forward-looking component, presenting sales predictions for a specific genre for the 2010 to 2019 period. These predictions are evaluated against actual sales data to assess their accuracy.

From 2010 to 2019, there was a big difference between what was expected in sales and what really happened. Predictions expected that sales to keep growing, but sales dropped every year and fell to zero by 2017. This drop could be due to new gaming platforms, changes in what consumers want, and the growth of mobile games. These factors likely affected the market and led to the decline in sales.

INTRODUCTION

This report entails the analysis of video games sale in North America during the period 2000-2009. The analysis focuses on various perspective of the sales data. It also aims to identify the key trends in the market, such as the most popular game genres and platforms. The report also compares the North American market with the Japanese and global markets to highlight the regional differences and similarities. Finally, there is an analysis of predicting sales trends for the decades 2010 to 2019 and assessing the accuracy of these predictions.

The report being presented is an analytical report, selected for its effectiveness in analyzing and interpreting complex data. This format is ideal for conducting a thorough examination of video game sales, allowing for detailed comparisons across different markets and identifying significant trends from 2000 to 2009. By employing various analytical tools, the report not only summarizes historical data but also makes informed predictions for future trends. The structured nature of an analytical report ensures that the findings are data-driven, offering valuable insights and recommendations for understanding and navigating the video game industry. Data was analyzed using Microsoft Excel, employing pivot tables and charts to visualize trends and comparisons.

In summary, the analysis highlights significant shifts in consumer preferences and market dynamics. Also, the findings underscore the importance of adapting strategies to evolving market trends and provide actionable recommendations for stakeholders in the video game industry.

DATA PREPARATION AND CLEANING

DATA SOURCE

The analysis is based on the Video Games Sales Dataset from Kaggle, which includes global sales data categorized by Name, platform, year of release, genre, publisher, Sales across different region etc. (Ibriiee, 2022)

Column Name	Description
Name	The name of the video game
Platform	The platform on which the game was released
Year_of_release	The year in which the game was released
Genre	The genre of the video game
Publisher	The company responsible for publishing the game
NA_Sales	The sales of the game in North America
EU_Sales	The sales of the game in Europe
JP_Sales	The sales of the games in Japan
Other_Sales	The sales of the game in other regions
Global_Sales	The total sales of the game across the world
Critic_Score	The average score given to the game by professional critics
Critic_Count	The number of critics who reviewed the game
User_Score	The average score given to the game by users
User_Count	The number of users who reviewed the game
Developer	The company responsible for developing the game
Rating	The rating of the game

DATA CLEANING

It is crucial to ensure the quality of the data so that our findings are accurate and dependable. After loading the dataset, Initial actions included thorough checks for any repeated information and spots where data was missing. The primary goal of data cleaning is to ensure that the data is reliable and ready for further analysis.

Data cleaning achieved through the following steps

- Loaded the data to excel to start the process.
- Checked for duplicates using the Data menu and found that no duplicates were present in the dataset.
- Checked for missing values:
Utilized the Home menu, selected Find and Select, and chose Go to Special to identify blanks. Additionally, used conditional formatting to highlight missing data. Two missing values were found in the Name and Genre columns, and those rows were deleted. A sizable number of missing values were found in columns such as Year of Release, Critic Score, Critic Count, User Score, and User Count. Deleting this amount of data might affect our analysis, so the decision was made to impute the missing values with the mean of the corresponding columns
- Deleted unwanted columns like Developer and rating since our analysis focuses more on identifying key trends in genre and platform popularity.
- Data was filtered using filter in excel to include only sales from 2000 to 2009.

DATA ANALYSIS

NORTH AMERICAN MARKET OVERVIEW

Utilized pivot charts and pivot tables for an efficient analysis for key trends in the market using data set.

SALES BY GENRE

The pivot table and pivot chart below show the total sales by genre in North America from 2000 to 2009

Row Labels	Sum of NA_Sales
Action	461.63
Adventure	61.29
Fighting	121.72
Misc	241.47
Platform	202.65
Puzzle	55.05
Racing	226.2
Role-Playing	170.25
Shooter	257.76
Simulation	135.78
Sports	432.58
Strategy	32.82
Grand Total	2399.2

Table 1

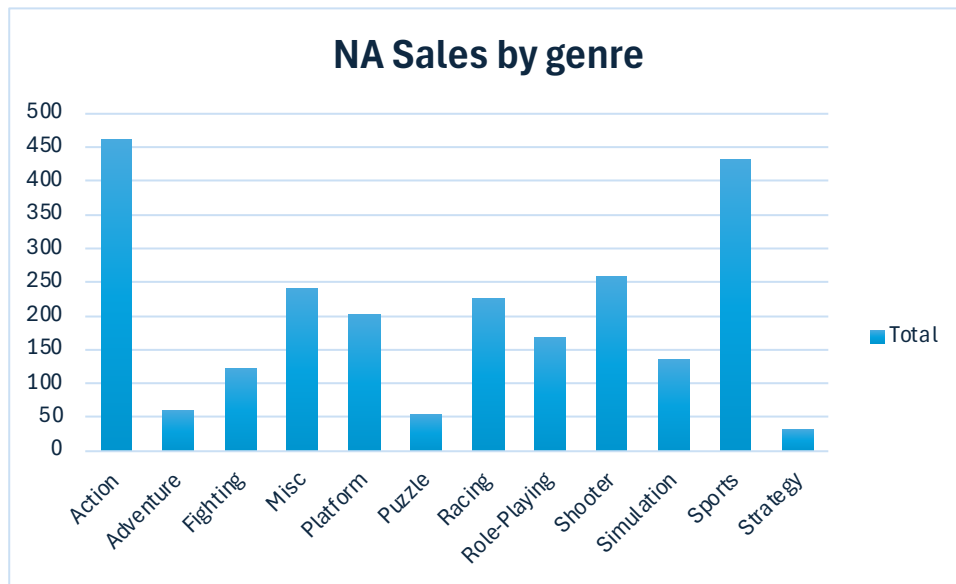


Figure 1

During this period, action games were the most popular in the North American market, with sports and shooter games also enjoying significant popularity. This trend highlights a strong consumer preference for fast-paced and competitive gameplay.

SALES BY PLATFORM

The pivot table and pie chart below show the total sales by platform in North America from 2000 to 2009

Row Labels	Sum of NA_Sales
DC	2.53
DS	320.65
GB	9.12
GBA	184.12
GC	131.94
N64	21.88
PC	24.86
PS	65.71
PS2	570.6
PS3	160.88
PSP	97.62
Wii	365.67
WS	0
X360	261.56
XB	182.06
Grand Total	2399.2

Table 2

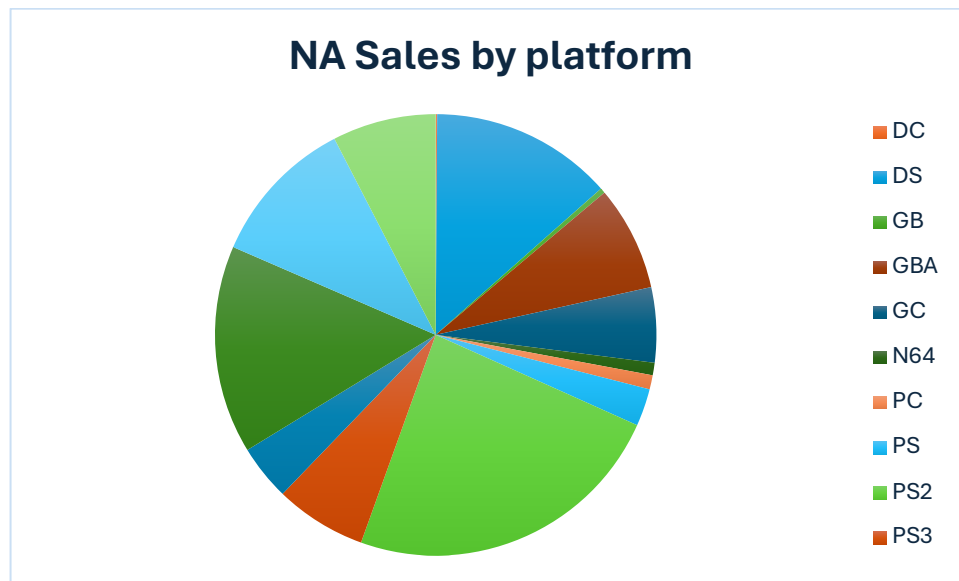


Figure 2

The PlayStation 2 (PS2) was the leading platform in North America during this time, followed closely by the Wii and DS. This suggests that Sony were the dominant players in the market, with Nintendo also holding a significant share.

JAPAN MARKET OVERVIEW

Utilized pivot charts and pivot tables for an efficient analysis for key trends in the market using data set.

SALES BY GENRE

The pivot table and pivot chart below show the total sales by genre in Japan from 2000 to 2009.

Row Labels	Sum of JP_Sales
Action	60.03
Adventure	21.67
Fighting	30.99
Misc	61.14
Platform	39.46
Puzzle	20.78
Racing	21.06
Role-Playing	138.17
Shooter	9.24
Simulation	26.86
Sports	60.37
Strategy	20.91
Grand Total	510.68

Table 3

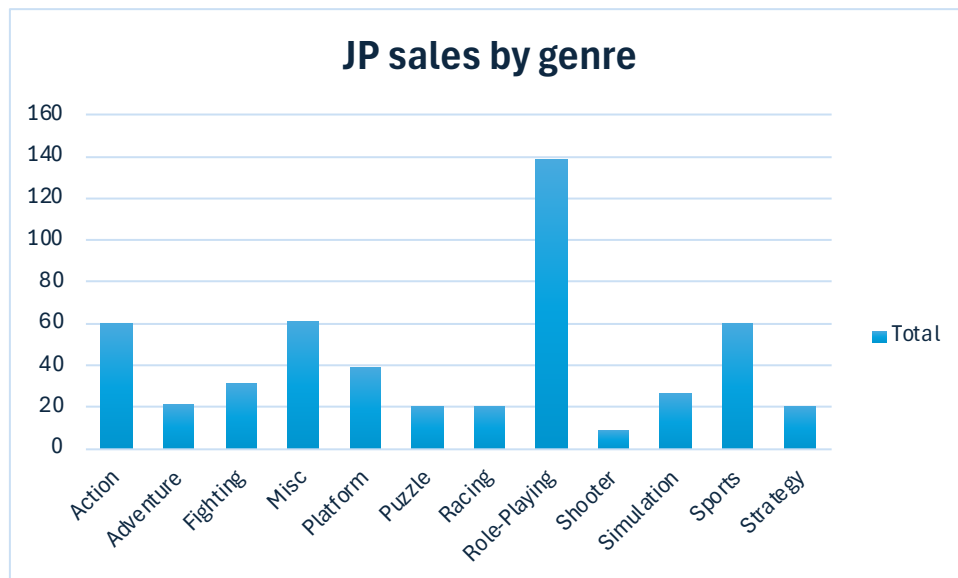


Figure 3

This highlights that Role-Playing games are the most popular genre in Japan during this period, with other genres like Misc, Sports, and Action also performing well. while genres like Shooter, Puzzle, and Racing have lower sales.

SALES BY PLATFORM

The pivot table and pivot chart below show the total sales by Platform in Japan from 2000 to 2009

Row Labels	Sum of JP_Sales
DC	3.96
DS	147.1
GB	13.01
GBA	46.56
GC	21.34
N64	8.25
PC	0.08
PS	20.1
PS2	136.74
PS3	20.15
PSP	33.68
Wii	50.53
WS	0.96
X360	6.84
XB	1.38
Grand Total	510.68

Table 4

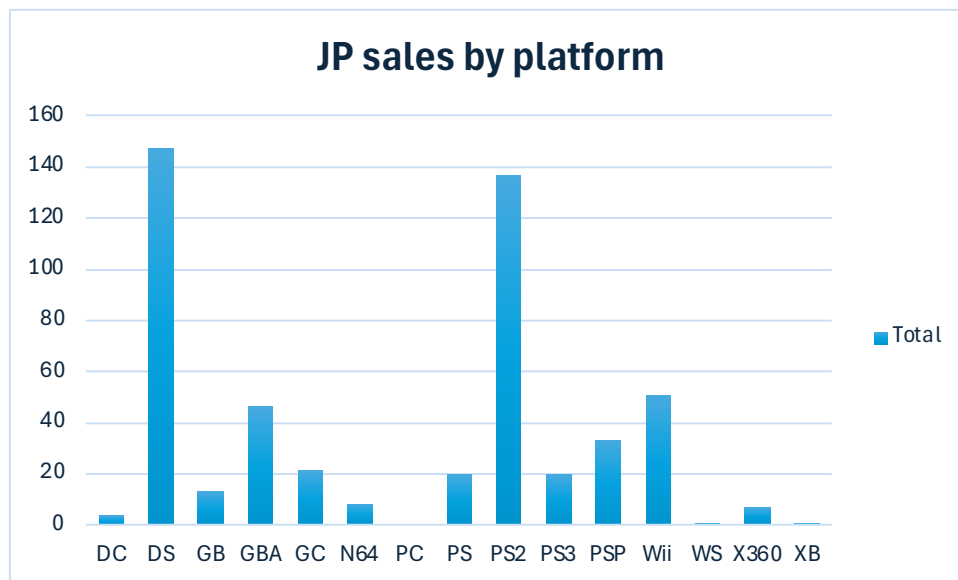


Figure 4

Nintendo DS and PlayStation 2 are the most popular platforms in Japan during this period, with other platforms such as the GBA and Wii also having a substantial presence, while platforms like PC and WS have minimal impact on the sales figures.

GLOBAL MARKET OVERVIEW

Utilized pivot charts and pivot tables for an efficient analysis for key trends in the market using data set.

SALES BY GENRE

The pivot table and pivot chart below show the total sales by genre globally from 2000 to 2009

Row Labels	Sum of Global_Sales
Action	853.67
Adventure	122.8
Fighting	230.41
Misc	484.27
Platform	374.98
Puzzle	118.03
Racing	438.46
Role-Playing	415.99
Shooter	433.22
Simulation	263.77
Sports	802.9
Strategy	79.48
Grand Total	4617.98

Table 5

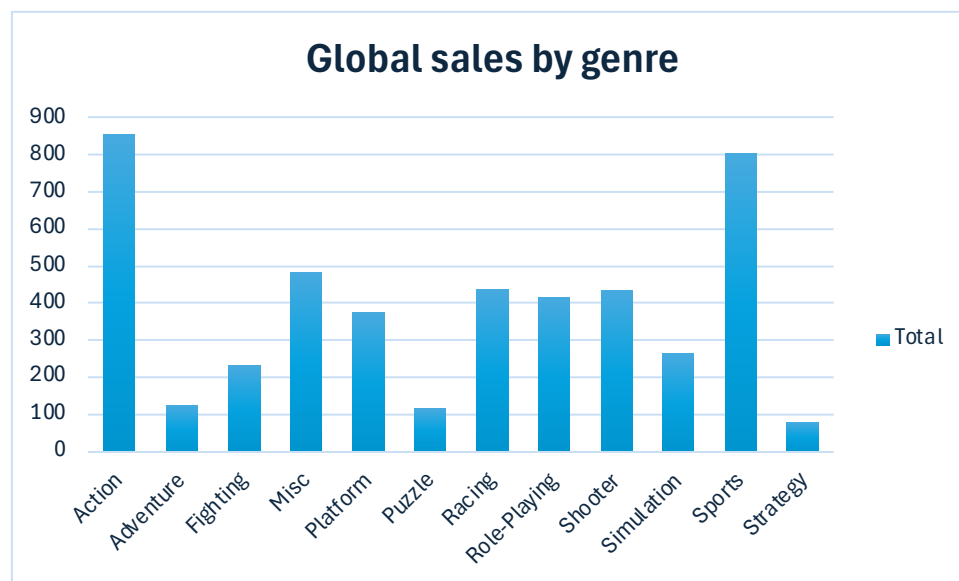


Figure 5

The pivot table reveals that Action and Sports genres dominate global video game sales, while other genres like Racing, Shooter, and Role-Playing also contribute notably. Conversely, genres such as Adventure, Puzzle, and Strategy have lower global sales figures.

SALES BY PLATFORM

The pivot table and pivot chart below show the total sales by platform globally from 2000 to 2009

Row Labels	Sum of Global_Sales
DC	7.41
DS	679.58
GB	29
GBA	313.56
GC	197.14
N64	37.35
PC	84.28
PS	140.56
PS2	1227.36
PS3	343.46
PSP	225.8
Wii	668.54
WS	0.96
X360	410.89
XB	252.09
Grand Total	4617.98

Table 6

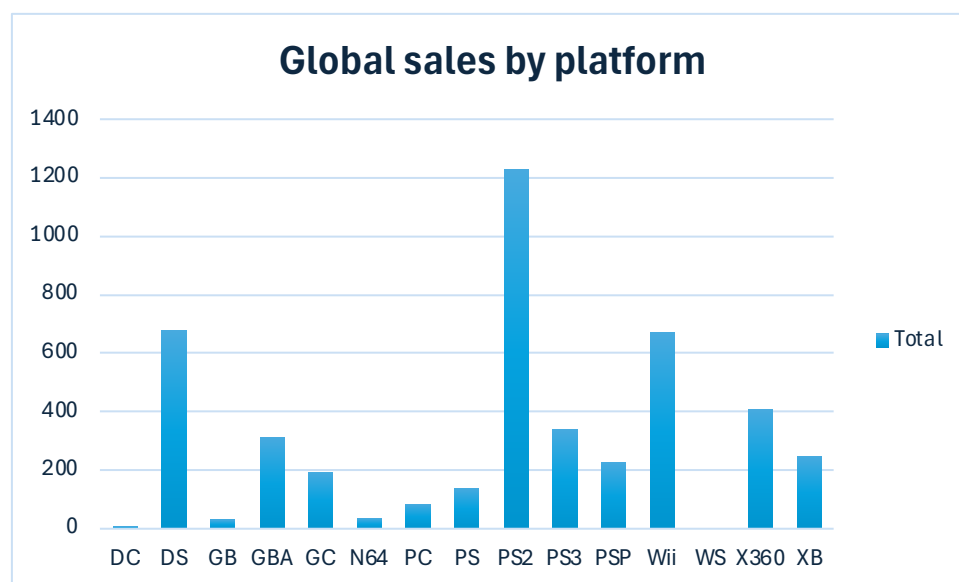


Figure 6

The pivot table highlights that the PlayStation 2(PS2) is the top performer in global video game sales, significantly outpacing other platforms. The Nintendo DS and Wii also achieve high sales figures, indicating their strong market presence. Other notable platforms include the Xbox 360 and PS3. In contrast, platforms like the Dreamcast and

Wonder Swan see minimal global sales. Overall, the PS2, DS, and Wii are the dominant forces in the global video game market.

COMPARISON WITH GLOBAL AND JAPANESE MARKETS

COMPARING SALES OF NORTH AMERICA AND JAPAN

Comparing sales data of North America and Japan to highlight the regional differences and similarities. Pivot table and chart below compares video games sales in North America and Japan across different genres.

Row Labels	Sum of NA_Sales	Sum of JP_Sales
Action	461.63	60.03
Adventure	61.29	21.67
Fighting	121.72	30.99
Misc	241.47	61.14
Platform	202.65	39.46
Puzzle	55.05	20.78
Racing	226.2	21.06
Role-Playing	170.25	138.17
Shooter	257.76	9.24
Simulation	135.78	26.86
Sports	432.58	60.37
Strategy	32.82	20.91
Grand Total	2399.2	510.68

Table 7

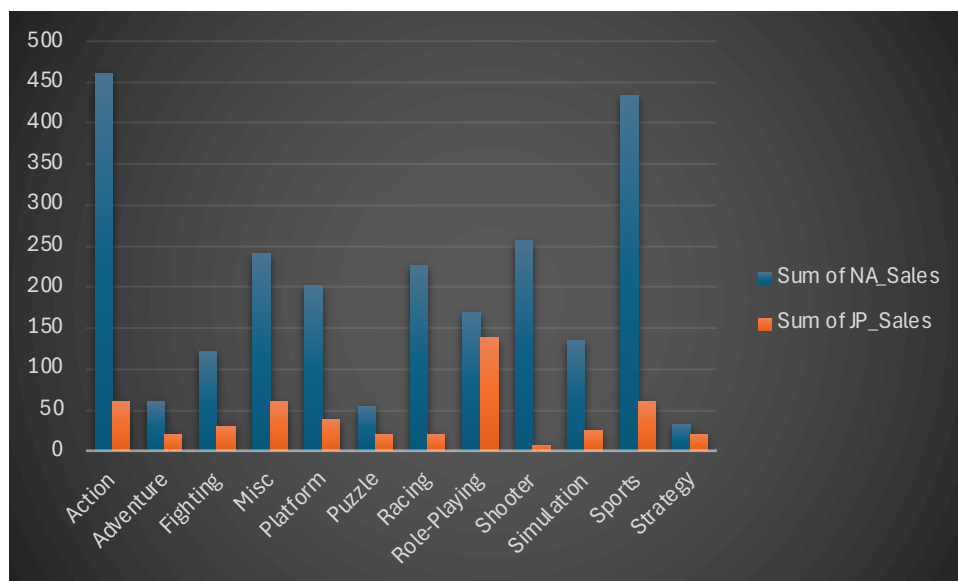


Figure 7

The table and chart highlight distinct regional preferences in video game genres, with North America showing strong sales in Action, Sports, and Shooter games, while Japan favours Role-Playing games. This highlights cultural differences in gaming preferences between two regions (JetSynthesys Japan, n.d.).

COMPARING SALES OF NORTH AMERICA AND GLOBAL

Comparing sales data of North America and global markets to highlight the regional differences and similarities. Pivot table and line chart below compares video games sales in North America and global markets across different genres.

Row Labels	Sum of NA_Sales	Sum of Global_Sales
Action	461.63	853.67
Adventure	61.29	122.8
Fighting	121.72	230.41
Misc	241.47	484.27
Platform	202.65	374.98
Puzzle	55.05	118.03
Racing	226.2	438.46
Role-Playing	170.25	415.99
Shooter	257.76	433.22
Simulation	135.78	263.77
Sports	432.58	802.9
Strategy	32.82	79.48
Grand Total	2399.2	4617.98

Table 8

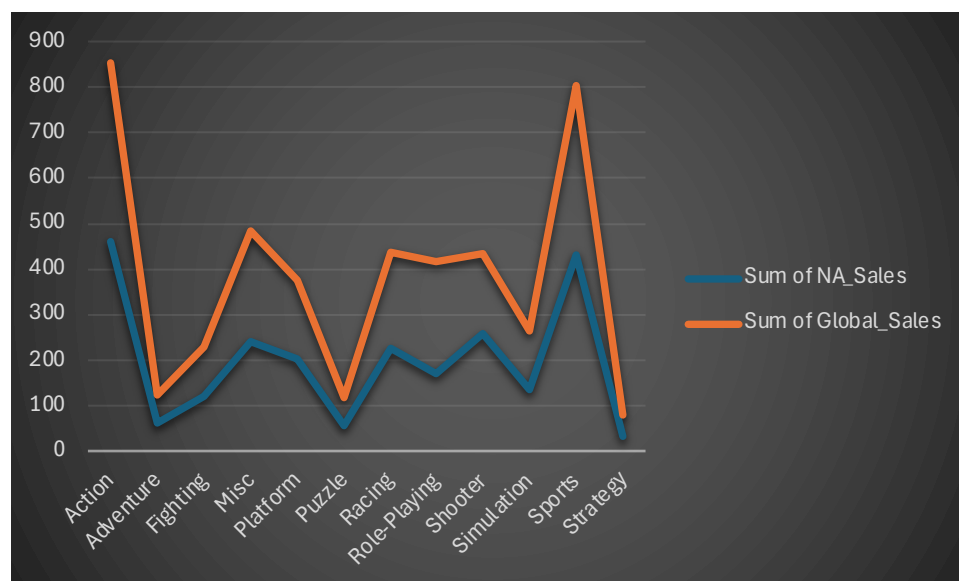


Figure 8

The table and chart show that North American sales contribute significantly to global video game sales, especially in genres like Action, Sports, and Shooter, where North America accounts for a substantial portion of the global market. While North America is a key market across most genres, the data also highlights the global appeal of various genres, such as Role-Playing and Racing, which have strong sales worldwide. Overall, North America's gaming preferences have a major influence on global sales, underscoring its importance in the video game industry. (ESA, n.d.)

PREDICTION ANALYSIS

This analysis involves predicting sales trends for **sports** genre based on historical data from 2000 to 2009 and then comparing those predictions with actual sales data from 2010 to 2019. Excel **FORECAST** function is utilized to perform this analysis. Below is the step by step analysis.

- Filter data for the sports genre from 2000 to 2009
 - Created a pivot table containing North America sales during these years for sports genre
 - Created pivot charts by inserting pivot table and observed the data trend.
 - Added a polynomial trendline to the chart and added R squared value.
- Adding a trendline to a chart helps to visually represent the underlying trend in the data, making it easier to identify patterns, such as consistent growth or fluctuations over time. Trendlines can highlight the overall direction of data points, in sales data, a trendline can help determine whether sales are generally increasing or decreasing, allowing for better forecasting and decision-making based on the observed trends.

Below are the pivot table and trendline chart

Row Labels	Sum of NA_Sales
2000	22.75
2001	28.8
2002	35.17
2003	31.45
2004	38.52
2005	36.06
2006	72.78
2007	47.59
2008	48.61
2009	70.85
Grand Total	432.58

Table 9

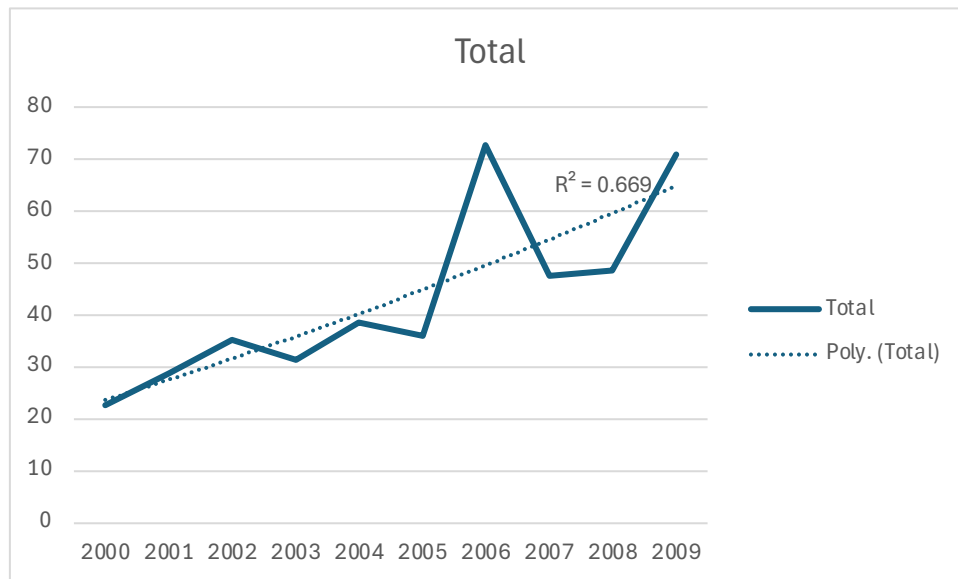


Figure 9

The chart shows fluctuations but also an increase in sales generally during the years from 2000-2009.

- Forecasted predicted sales value by using Excel's FORECAST function
=FORECAST (new_x ,known_y's, known_x's)
 Here known_y's =North American sales in sports genre from 2000 to 2009
 Known_x's = year from 2000 to 2009
 New_x values replace with the years from 2010 to 2019
 Here is the equation to find the predicted sales for the years 2010 to 2019
=FORECAST (2010, known_y's,known_x's)
 Applied the forecast function for each year from 2010 to 2019
- Below table shows the predicted sales during the years 2010 to 2019 using forecast function

year	Predicted sales
2010	68.43133333
2011	73.00830303
2012	77.58527273
2013	82.16224242
2014	86.73921212
2015	91.31618182
2016	95.89315152
2017	100.4701212
2018	105.0470909
2019	109.6240606

Table 10

- Extract actual sales data for the genre sports in the North America from 2010 to 2019 from the data set
- Below table and line chart Compare the actual and predicted Sales during these years

Row Labels	Sum of Predicted sales	Sum of Actual sale
2010	68.43133333	48.11
2011	73.00830303	27.17
2012	77.58527273	16.26
2013	82.16224242	19.14
2014	86.73921212	19.82
2015	91.31618182	18.77
2016	95.89315152	7.54
2017	100.4701212	0
2018	105.0470909	0
2019	109.6240606	0
Grand Total	890.2769697	156.81

Table 11

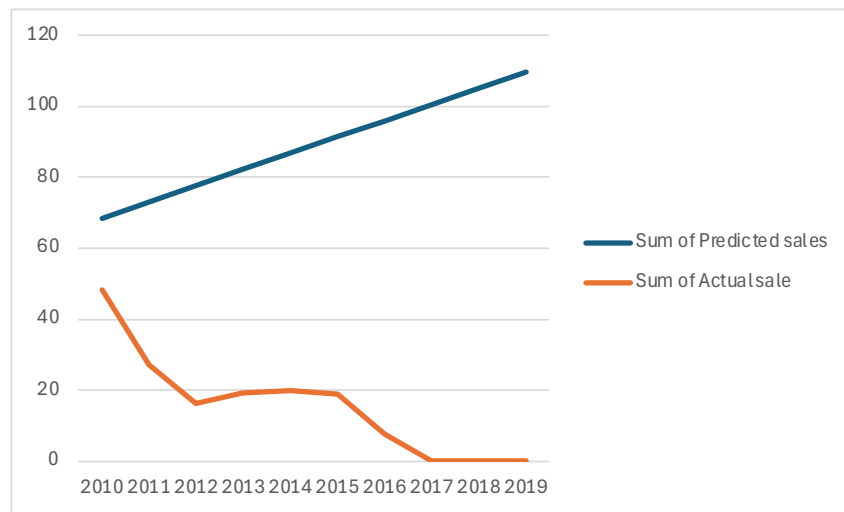


Figure 10

The data reveals a significant discrepancy between predicted and actual sales from 2010 to 2019. While the predicted sales were expected to rise steadily, the actual sales kept decreasing each year and even dropped to zero by 2017. This might be because of new gaming platforms, changes in consumer preferences, or the introduction of new mobile based game genres could have impacted sales. (wikipedia, 2024)

CONCLUSIONS

The analysis of the North American video game market from 2000 to 2009 reveals a clear dominance of action and sports genres, with the PlayStation 2 standing out as the top platform during this period. The data highlights notable regional differences in genre preferences when compared to the Japanese and global markets, underscoring the need for tailored strategies.

Given the strong performance of action and sports games in North America, it is evident that these genres continue to be pivotal for developers and publishers aiming to optimize their market presence and sales. However, the disparity in genre preferences between regions presents a strategic opportunity. Developers should not only leverage their strengths in action and sports games but also explore role-playing games to tap into markets that could enhance their reach.

Marketers are advised to adopt region-specific approaches, especially when entering the Japanese market, where preferences diverge significantly from those in North America. By aligning marketing strategies with regional tastes, companies can better engage with diverse audiences and achieve more effective market penetration.

In summary, while action and sports games remain central to success in North America, embracing a broader range of genres and tailoring marketing efforts to regional preferences will be crucial for sustained growth and competitive advantage in the global video game market.

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