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Call:  08813907089

E-mail ID: ijraset@gmail.com

Global Sales of Video Games - Statistical Analysis

Shubhang Chowatia

Anil Surendra Modi School of Commerce, NMIMS University, Mumbai

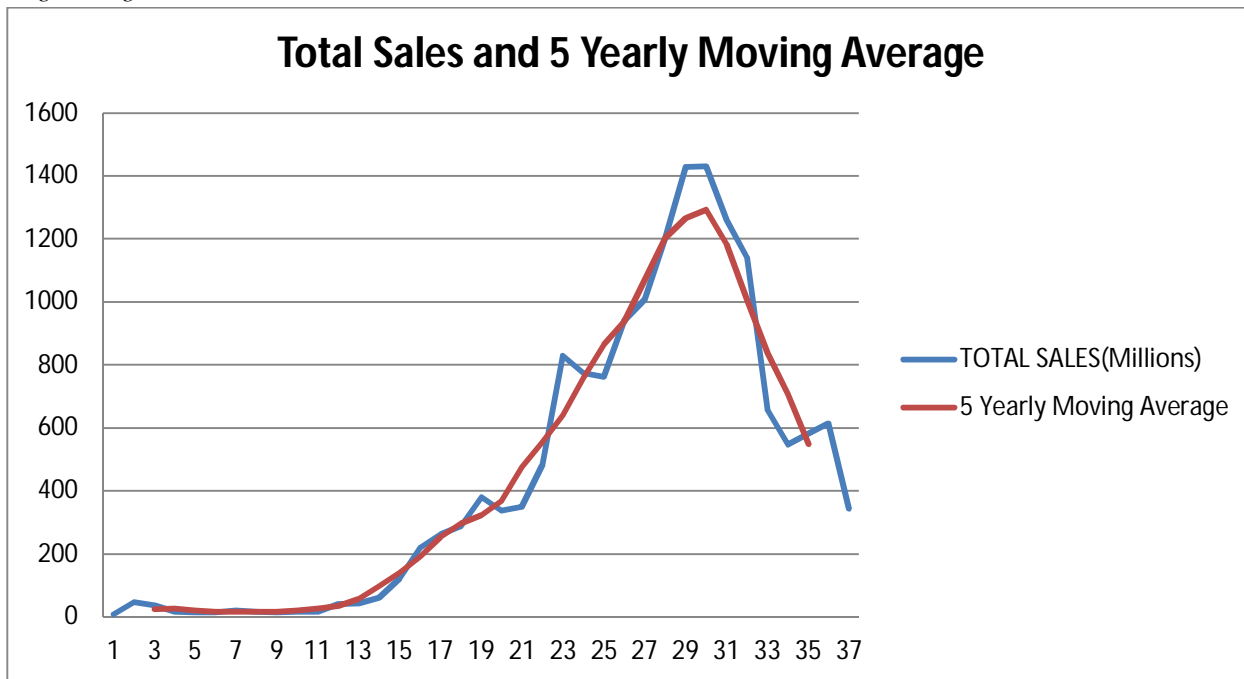
Abstract: In this paper we studied the Global Sales of Videos Games and found the trend it followed along with any correlation with time, as well as a 5 yearly moving average using daily data set converted to a yearly average. We also studied the trends the sales followed since January 1, 1980 till December 31, 2016. Furthermore, a regression analysis of the was undertaken.

I. INTRODUCTION

Video gaming was introduced as an alternative form of entertainment and recreation for people. We see that there was a sharp rise in the video games sales since its invention in 1958. Being a new technology in the market, it was highly demanded by people throughout the world in the late 20th Century. As the years passed, people started focusing more on work than on video gaming leading to a fall in the sales level.

YEAR	TOTAL SALES(Millions)	5 Yearly Moving Average	X	Y Trend line
1980	9		-18	-144.2133713
1981	46		-17	-111.6925083
1982	36	24.4	-16	-79.17164533
1983	17	25.4	-15	-46.65078236
1984	14	20.4	-14	-14.12991939
1985	14	16.4	-13	18.39094358
1986	21	16	-12	50.91180654
1987	16	16.6	-11	83.43266951
1988	15	17	-10	115.9535325
1989	17	21	-9	148.4743954
1990	16	26.4	-8	180.9952584
1991	41	35.4	-7	213.5161214
1992	43	56.2	-6	246.0369844
1993	60	96.8	-5	278.5578473
1994	121	141.2	-4	311.0787103
1995	219	190.4	-3	343.5995733
1996	263	254.2	-2	376.1204362
1997	289	297.6	-1	408.6412992
1998	379	323.6	0	441.1621622
1999	338	367.4	1	473.6830251
2000	349	475.4	2	506.2038881
2001	482	554.6	3	538.7247511
2002	829	639.6	4	571.245614
2003	775	758	5	603.766477
2004	763	863.2	6	636.28734
2005	941	937.8	7	668.8082029
2006	1008	1068.4	8	701.3290659
2007	1202	1202	9	733.8499289
2008	1428	1265.6	10	766.3707918
2009	1431	1291.8	11	798.8916548
2010	1259	1182.8	12	831.4125178
2011	1139	1006.4	13	863.9333807
2012	657	836.6	14	896.4542437
2013	546	707.6	15	928.9751067
2014	582	548.6	16	961.4959697
2015	614		17	994.0168326
2016	344		18	1026.537696
2017			19	1059.058559
2018			20	1091.579422
2019			21	1124.100284
2020			22	1156.621147
2021			23	1189.14201

A. Moving Averages

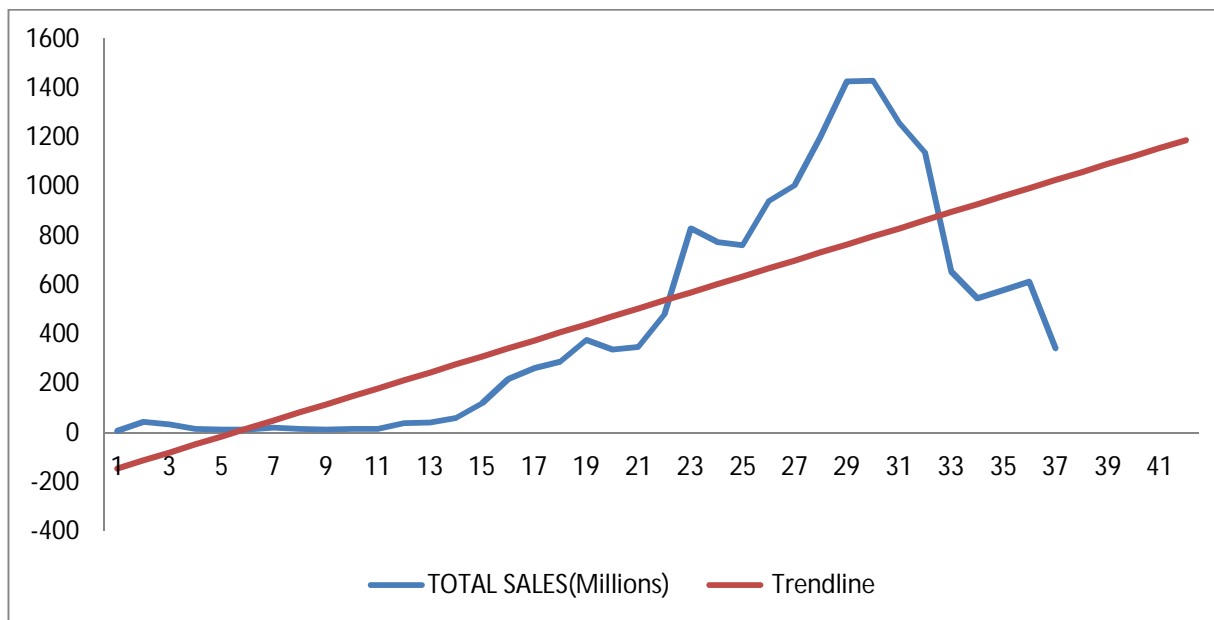


This graph shows data from January 1,1980 till December 31,2016. 1 indicates the 1st year of comparison i.e. 1980 and 37 shows the final year of comparison i.e.2016.

We clearly see a gradual increase in the sales of video games in the beginning followed by a steep growth and then we see a sharp fall in the sales in the recent years so we can expect it to fall in the following years.

We saw a growth in sales because video gaming was just introduced to the world and there a hype about it throughout the globe. We see that people then reduced the time spent in video gaming and hence the sales declined in the following years.

B. Trend Line



A trend line is drawn to predict the future values. We can see that the trend line is secular and rising.

C. Summary Output

SUMMARY OUTPUT								
Regression Statistics								
Multiple R	0.777027							
R Square	0.603771							
Adjusted R	0.59245							
Standard Error	289.2133							
Observations	37							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	1	4460984	4460984	53.33279	1.56E-08			
Residual	35	2927551	83644.31					
Total	36	7388535						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	441.1622	47.54637	9.278567	5.79E-11	344.6379	537.6864	344.6379	537.6864
X Variable	32.52086	4.453125	7.30293	1.56E-08	23.48054	41.56119	23.48054	41.56119

II. CONCLUSION

To conclude, the paper analyzed how the Video Games Sales have fluctuated over the years.

The simple mathematical tool of moving averages and trend line have been used to predict the future value.



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