E-ISSN 2985-7910

Proceeding Medan International Conference Economics and Business

Volume 1, Year 2023

"Entrepreneurship on Global Economics Development in the Era of Society 5.0"

Sales Forecasting Based on Demand on Honda Cars Using Three Forecasting Methods

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ABSTRACT

In this study, the authors discuss forecasting sales based on demand for Honda cars with three Forecasting methods. Forecasting is carried out using three methods, namely the Moving Average method, the Exponential Smoothing method and the Trend Analysis method by comparing the average absolute percentage error MAPE (Mean Absolute Percentage Error), the chosen forecasting method is the Trend Analysis method, with an MAD value of 11.754,93, MSE 11.850,8, and standard error 1.660,809. From the analysis of data processing that has been carried out based on the chosen forecasting method, the forecast for Honda car sales is 11.563,8 or 11.563 cars/month, meaning that PT Honda Prospect Motors Indonesia must provide 11.563 Honda cars every month to meet consumer demand.

Keywords: Sales forecasting, Honda Cars, Moving Average Method , Exponential Smoothing Method and Trend Analysis Method

INTRODUCTION

Transportation has become the main need of the community to carry out all economic, social and other activities. Transportation is the movement of people or goods from one place to another using the help of vehicles that can be driven by humans or machines. The benefits of transportation include helping the movement of people and goods to various regions. Good transportation support makes state life more optimal because all needs can be met. Various matters can be resolved thanks to the transportation itself. Including the movement of the flow of goods distributed to various regions. The availability of public transportation, especially in big cities in Indonesia, is still an unresolved problem.

Medan City is the third largest city in Indonesia which has a very high level of community mobility.The demand for a product in a company is a result of the various factors that interact with each other in the market. These factors are almost always forces that are outside the company's control, leaders who have the ability to make the right decisions in the face of an uncertain future, so that the company can achieve its goals. One of the important things to make this happen is to estimate or predict the amount of sales based on customer demand for the goods or services produced.

Forecasting is the art and science of predicting future events (Tita Detiana, 2011: 32). Sales forecasting is one of the important things in business planning. In the automotive industry, forecasting car sales is a very important aspect for the company. However, forecasting car sales is not always easy to do because of rapid market fluctuations and many influencing factors. Therefore, an appropriate method is needed to make accurate forecasting of car sales. One method that is often used in forecasting car sales is the forecasting method. This method is often used in finance, economics, and operations. In use, forecasting methods can be used to predict changes in variables such as sales, prices, or demand .

Financial management in both private and public organizations typically operate under conditions of uncertainty or risk. Probably the most important function of business is forecasting . A forecast is a starting point for planning. The objective of forecasting is to reduce risk in decision making. In business, forecasts are the basis for capacity planning, production and inventory planning, manpower planning, planning for sales and market share, financial planning and budgeting, planning for research and development and top management's strategic planning. Sales forecasts are especially crucial aspects of many financial management activities, including budgets, profit planning, capital expenditure analysis, and acquisition and merger analysis (PES, 2007: 13-1).

Forecasts are needed for marketing, production, purchasing, manpower, and financial planning. Further, top management needs forecasts for planning and implementing long-term strategic objectives and planning for capital expenditures. More specifically, marketing managers use sales forecasts to determine 1) optimal sales force allocations, 2) set sales goals, and 3) plan promotions and advertising. Other things such as market share, prices, and trends in new product development are required (Michael Samonas, 2015: 180). Almost all financial statement models are sales driven, in that they assume that many of the balance sheet and income statement items are directly or indirectly related to sales. So forecasting sales is one of the greatest challenges for the business modeler (Michael Samonas, 2016: 75).

There are various forecasting methods that can be used, including the moving average, exponential smoothing, and regression methods. Selection of the right method

will depend on the characteristics of the available data. However, it is important to remember that sales forecasts are not always completely accurate, and there are always external factors that can influence the final result. Therefore, sales forecasts should always be checked and updated regularly. Sales forecasting has a very important role in business planning and decision making. This can assist companies in determining marketing strategies, managing inventory, and predicting resource requirements. Therefore, sales forecasting must be done carefully and use the appropriate method.

WHOLESALES - RETAIL SALES - PRODUCTION - EXPORT IMPORT
BY BRAND JAN-DEC 2022

A. WHOLESALES

NO.	BRAND	MONTH												SALES	SHARE
		JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	2022	%
1	TOYOTA	22,686	24,865	33,344	27,779	13,207	27,290	29,326	30,844	22,449	33,740	25,462	28,128	331,410	31.6%
2	DAIHATSU	18,319	15,036	17,465	15,617	6,881	16,925	15,936	15,339	18,781	17,489	20,963	23,815	202,665	19.3%
3	HONDA	10,883	11,407	12,875	10,149	8,114	9,057	9,599	11,427	13,374	9,862	11,891	12,642	131,280	12.5%
4	MITSUBISHI MOTORS	12,136	10,018	11,501	7,528	5,414	4,730	8,023	9,700	6,058	6,109	7,056	10,812	99,051	9.5%
5	SUZUKI	7,017	6,750	8,604	5,801	6,026	7,215	7,467	8,064	7,651	7,863	8,160	9,990	90,408	8.6%
6	MITSUBISHI FUSO	2,432	2,290	1,788	4,799	1,307	3,183	3,731	4,105	3,401	3,075	3,638	3,837	37,586	3.6%
7	ISUZU	2,828	2,800	3,420	2,854	2,740	2,594	3,239	3,463	3,450	3,262	3,091	2,905	36,646	3.5%
8	HYUNDAI - HMID	1,220	2,400	2,150	2,175	1,632	1,806	2,262	5,700	5,126	3,505	2,000	2,090	31,965	3.0%
9	HINO	2,022	1,764	2,336	1,533	1,871	2,900	2,832	2,961	3,136	3,031	3,206	3,261	30,853	2.9%
10	WULING	2,501	2,008	2,500	2,201	815	1,236	1,506	2,621	3,000	2,955	3,094	5,352	29,989	2.9%
11	MAZDA	208	58	110	627	245	314	340	362	348	454	404	418	3,888	0.4%
12	MERCEDES-BENZ PC	141	123	255	236	214	227	368	380	338	289	310	354	3,235	0.3%
13	MERCEDES-BENZ CV	133	242	389	315	111	276	154	150	355	257	225	435	3,042	0.3%
14	B M W	178	178	257	293	190	288	310	302	273	223	168	235	2,892	0.3%
15	NISSAN	313	340	338	158	116	160	148	191	137	186	162	164	2,413	0.2%
16	DFSK	202	101	286	75	188	292	333	273	128	101	121	313	2,413	0.2%
17	K I A	113	67	135	191	134	91	196	290	324	389	53	103	2,086	0.2%
18	UD TRUCKS	225	219	248	89	139	69	36	161	221	217	214	155	1,993	0.2%
19	LEXUS	-	71	170	113	115	84	104	65	81	87	51	92	1,033	0.1%
20	MORRIS GARAGE	212	108	2	25	33	56	114	107	112	22	63	118	974	0.1%
21	MINI	46	51	67	53	50	56	52	69	79	48	68	43	700	0.1%
22	PEUGEOT	50	32	65	46	46	34	40	35	40	31	14	18	451	0.0%
23	VOLKSWAGEN	35	21	62	30	23	29	55	55	23	50	10	20	403	0.0%
24	SUBARU	-	-	-	-	-	-	30	50	50	26	27	31	214	0.0%
25	TATA	25	5	28	42	-	3	26	24	28	11	13	-	205	0.0%
26	FAW	24	40	19	5	8	14	13	13	19	15	9	12	191	0.0%
27	AUDI	1	-	1	7	1	10	6	5	6	3	2	11	53	0.0%
28	HYUNDAI - HIM	-	1	-	-	-	-	-	-	-	-	-	-	1	0.0%
29	DATSUN	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
30	SCANIA	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
31	INFINITI	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
32	CHERY	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
33	HONGYAN	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
34	RENAULT	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0%
	GRAND TOTAL	84,149	80,995	98,535	82,731	49,710	78,910	86,245	96,956	99,386	93,194	91,275	105,354	1,048,040	100%
	CUMULATIVE	84,149	165,144	263,679	346,410	396,120	475,030	561,275	658,231	758,217	851,411	942,686	1,048,040		

Figure 1. Whole sales-retail sales-production-export import by brand in Indonesia
Source : https://www.gaikindo.or.id/indonesian-automobile-industry-data/

From the graph above, Honda is the third best-selling car in 2022 beating its competitors such as Mitsubishi, Suzuki, Hyundai and several other car companies. Data from the Association of Indonesian Automotive Industries (Gaikido) recorded Honda sales during the January-December 2022 period reaching 131,280 units. While Mitsubishi is in fourth place with only 99,051 units, fifth is Suzuki with sales of 90,408 units. Car sales in Indonesia from January to December 2022 grew 18.12% to 1,048,040 units from the same period the previous year of only 887,202 units. Meanwhile, production rose 31.03% to 1,470,146 units from the previous 1,121,967 units.

As one of the largest car companies in Indonesia, PT Honda Prospect Motors is committed to always meeting customer product demands. PT Honda Prospect Motors is a company that implements a Make to Order (MTO) system to produce its products in order to meet customer demands. Within the scope of production, forecasting is used to predict demand in one or several subsequent periods based on past sales data. With this, the company will produce a number of products in accordance with the targets that have been made. Forecasting product demand will be able to help the company as a consideration in carrying out the production process for the next several periods. By knowing historical data patterns, demand forecasting methods can be determined. This study aims to predict sales based on car demand at PT Honda Prospect Motors. The product to be studied is a Honda car.

Based on the background above, the authors are interested in researching " Sales Forecasting Based on Demand on Honda Cars with Three Forecasting Methods ". The formulation of the problem is as follows:

1. What are the forecasting results for Honda car sales using the moving average, exponential smoothing and trend analysis methods?
2. What method is most appropriate for predicting Honda car sales results with the smallest error rate among the three methods?

3. Is there a significant difference in the forecasting results of Honda car sales using the moving average, exponential smoothing and trend analysis methods?

METHOD

According to Darmadi (2013: 153), the research method is a scientific way to obtain data with a specific purpose. The scientific method means that research activities are based on scientific characteristics, namely rational, empirical and systematic. Based on the explanation above, it can be concluded that the research method is a scientific way to obtain data with specific purposes and uses.

Data Source

Source of data in this study using primary data and secondary data. Primary data obtained from https://www.gaikindo.or.id/ in 2022. While secondary data was obtained based on the results of library research (Library Research) which is used to support relevant theories in this study.

Population and Sample

Population

The population is a general area composed of subjects or objects that have certain qualities and characteristics determined by the researcher to be studied and then made conclusions (Sugiyono, 2014). For this research, taken from Honda car sales in 2022.

Sample

The sample is part of the population selected to be the object of research. In this study, only a number of Honda car buyers were selected from the entire population of Honda car buyers in 2022 to be used as a sample. The determination of the number of samples in this study is from January 2022 to December 2022, so the total sample is 12 months or a full year.

Data Processing Techniques

According to Sujarweni (2014: 103) "Data analysis is defined as an effort to data that is already available and then processed with statistics and can be used to answer the formulation of problems in research." Thus, data analysis techniques can be interpreted as a way of implementing. The analytical method used in this study is forecasting calculations. Forecasting analysis is carried out using the QM for Windows V 5.0 program.

Sales Forecasting

The data used to make sales forecasting is past sales data. The forecasting method used is Double Moving Average and Double Exponential Smoothing.

Moving Average Method

Moving average is the method most often used and the most standard. Moving averages are a common forecasting method and easy to use tools available for technical analysis . Moving averages provide a simple method of smoothing past data. This method is useful for forecasting when there is no trend, use different estimates to consider it. This is called "moving" because as new data becomes available, the oldest data is no longer used (Makridakis et al, 1999).

The main purpose of using moving averages is to eliminate or reduce randomness in the time series. The moving average technique in a time series consists of taking a set of observed values, obtaining the average of these values, and then using the average value as a forecast for the next period. The average value is calculated based on the amount of data, where the moving average number is determined from the price 1 to the value of N data owned. moving average is calculated using the following formula:

$$F_{t+1} = \frac{1}{N}\sum_{i=t-N+1}^{t} X_i$$

Information:

t = is the most recent value and t+1 is the next period, for which period a forecast is made.

Ft+1 = forecast for the next period, t+1

Xt,t-1,t-2 = actual/observed values of that variable in period t,t-1,t-2,..

N = the number of observations used in calculating the moving average.

In the moving average model , it can be seen that all observational data has the same weight that forms the average. Even though the most recent observational data should have greater weight compared to past observational data. This is seen as a weakness in the moving average method .

Middle value

Given a set of data which includes N periods, the last time and determined the first T data points as initialization groups and the rest as testing groups. The simple averaging method is to take the average of all the data in the initialization group

$$\overline{X} = \sum_{i-1}^{T} X_i \; IT = F_{T+1} \quad \ldots\ldots\ldots(2)$$

As a forecast for the period (T + 1) then when data for the period (T + 1) is available, it is possible to calculate the error value.

$$e_{T+1} = X_{T+1} - F_{T+1} \ldots\ldots\ldots(3)$$

In the past historical data group there is one more data point so that the new average value is:

$$\overline{X} = \sum_{i-1}^{T+1} X_i \; I(T+1) = F_{T+2} \quad \ldots.(4)$$

And a new error element, if XT+2 is

$$e_{T+2} = X_{T+2} - F_{T+2} \ldots\ldots\ldots(5)$$

Simple or single moving average (Simple Moving Average)

One way to modify the influence of past observations on the mean as a forecast is to determine in advance how many past observed values to include to calculate the mean. To describe this procedure, the term moving average is used because every time a new observation value appears, the new average value can be calculated by removing the oldest observed value and entering the most recent observed value.

Multiple moving averages

In order to reduce the systematic error that occurs when moving averages are used on data with a trend, a linear moving average method has been developed. The basis of this method is to calculate multiple moving averages, which are moving averages and are written according to symbols as MA (M x N) where MA is M periods
of the N-period MA. The moving average forecasting procedure includes three aspects:

1. Use of a single moving average at time t (s't).
2. Adjustment which is the difference between the single and double moving averages at time t (S't – S"t).
3. Adjustment for trend from period t to period t+1 (or to period t+m).

The dual adjustment is most effective when the trend is linear and the random error component is not very strong. This adjustment is effective due to the fact that a single MA lags behind a series of data that shows a trend . If the data series shows a trend , then a single MA will produce something resembling a systematic error and this systematic error can be reduced by using the difference between the single moving average values and multiple moving average values.

The linear moving average procedure can generally be explained by the following equation:

$$S'_t = \frac{X_t + X_{t-1} + X_{t-2} + \ldots + X_{t-N+1}}{N} \quad \ldots\ldots(6)$$

$$S''_t = \frac{S_t + S'_{t-1} + S_{t-2} + \ldots + S'_{t-N+1}}{N} \quad \ldots\ldots(7)$$

$$a_t = S'_t + (S'_t - S''_t) = 2S'_t - S''_t \ldots\ldots(8)$$

$$b_t = \frac{2}{N-1}(S'_t - S''_t) \ldots\ldots(9)$$

$$F_{t+m} = a_t + b_t m \ldots\ldots(10)$$

Exponential Smoothing Method

The exponential smoothing method is a method that shows the weighting decreases exponentially to the longer observed values. There are one or more writing parameters that are specified explicitly, and the results of this choice determine the weight assigned to the observed value. (Makridakis et al, 1999).

The single exponential smoothing method (Single Exponential Smoothing/SES) requires at least two pieces of data to predict future values (Makridakis et al, 1999).

The simplest case of single exponential smoothing (SES), with the following equation:

For example, the old observation Xt-N is not available, so it must be replaced with an approximate value. One possible substitute is the previous period's forecast value Ft. The general equation used in calculating forecasting with the exponential smoothing method is:

$$F_{t+1} = aX_t + (1-a)F_t$$

$$= F_t + a(X_t - F_t)$$

$$= F_t + a(e_t)$$

Trend Analysis Method

That is the method of separating the three separate components of the archetype which tends to characterize the economic and business data series. These components are trend , cycle and seasonality factors. Straight-line matching to stationary (horizontal) data can be done by minimizing MSE using:

$$\bar{X} = \frac{\sum_{i=1}^{n} X_i}{n} \quad \ldots\ldots(14)$$

trend line for time series data: Xt = a + bt

The values of a and b that minimize MSE can be obtained by using the following equation:

$$b=\frac{n\sum tX-\sum t\sum X}{n\sum t^2-(\sum t)^2} \quad \text{.....(15)}$$

$$a=\frac{\sum X}{n}-b\frac{\sum t}{n} \quad \text{.....(16)}$$

Information:
a = intercept
b = slope (slope)

Forecasting Result Measures

There are 4 measurements commonly used to measure the accuracy of forecasting measurement results, namely:

Average absolute deviation (Mean Absolute Deviation = MAD)

MAD is the average absolute error over a certain period of time regardless of whether the forecasting results are greater or smaller than the facts. Systematically, MAD is formulated as follows:

$$MAD=\sum\left|\frac{A_t-F_t}{n}\right| \quad \text{.....(17)}$$

Information :
At = Actual Demand in Period–t
Ft = Forecasting demand (forecast) in the t-period n = Number of forecasting periods involved

Average squared error (Mean Square Error = MSE)

MSE is calculated by adding up the squares of all forecasting errors in each period and dividing by the number of forecasting periods.
Systematically, MSE is formulated as follows:

$$MSE=\sum\frac{(A_t-F_t)^2}{n} \quad \text{.....(18)}$$

Information:
At = Actual Demand in the t-period Ft = Forecast (forecast) in the t-period
N = Number of forecasting periods involved

Average forecasting error (Mean Forecast Error = MFE)

MFE is very effective for knowing whether a forecasting result over a certain period of time is too high or too low. If the forecasting results are not biased, the MFE value will be close to zero. MFE is calculated by adding up all forecasting errors during the forecasting period and dividing by the number of forecasting periods, systematically, MFE is expressed as follows:

$$MFE=\sum\frac{(A_t-F_t)}{n} \quad \text{.....(19)}$$

Information:
At = Actual demand in period-t
Ft = Forecasting demand (forecast) in the t-period n = Number of forecasting periods involved

The mean absolute percentage error (Mean Absolute Percentage Error = MAPE)

MAPE is a measure of relative error, MAPE is usually more meaningful when compared to MAD because MAPE expresses the percentage error of forecasting results against actual demand during a certain period which will provide information on the percentage of errors that are too high or too low. Systematically, MAPE is stated as follows:

$$MAPE = \left(\frac{100}{n}\right)\sum\left|A_t - \frac{F_t}{A_t}\right| \quad \text{.....(20)}$$

Information:
At = Actual demand in period-t
Ft = demand forecast (*forecast*) in the t-period
N = Number of forecasting periods involved.

RESULT AND DISCUSSION

From the results of observations that have been made on Honda car sales, the data obtained on car sales for the period from the beginning of January 2022 to the end of December 2022 are as follows:

Table 1. Honda Car Sales in 2022

Year	Month	Sales Amount
2022	January	10,883
	February	11,407
	March	12,975
	April	10.149
	May	8.114
	June	9057
	July	9,599
	August	11,427
	September	13,374
	October	9,962
	November	11,691
	December	12,642

Source: Gaikindo 2022

Moving Average Method

Moving average is a forecasting method used to reduce unimportant data fluctuations by taking the average of several consecutive data values. This method is used to remove the temporary effects of irrelevant data and to show clearer trends in the data. To get more effective forecasting results, we use the 12-month moving average method . The result of the calculation is as follows:

Table 2. Calculation Results With QM for Windows
Moving Average Method

MEASURE	VALUE
Error Measures	
Bias (Mean Error)	163.9
MAD (Mean Absolute Deviation)	1764.5
MSE (Mean Squared Error)	4227407
Standard Error (denom=n-2=8)	2298,752
MAPE (Mean Absolute Percent Error)	16.69%
Forecasts	
next period	12166.5

Based on the table above, the demand forecast value for the next period is 12,166.5 or 12,167 cars, the MAD value is 1,764.5, the MSE is 4227407 , and the bias is 163.9 while the standard error is 2,298.752 . Based on this output, it can be seen from MAPE (Mean Absolute Percent Error) that the error rate for using this method is 16.69%.

Exponential Smoothing Method

Exponential smoothing is a forecasting method that uses exponential moving averages to calculate forecasted future values. This method assumes that the past is a good indicator of the future . This reduces the impact of random fluctuations in the data and gives more weight to newer data. Here are the results of the calculations:

Table 3. Calculation Results With QM for Windows
Exponential Smoothing Method

MEASURE	VALUE
Error Measures	
Bias (Mean Error)	205,143
MAD (Mean Absolute Deviation)	1531,586
MSE (Mean Squared Error)	3082470,0
Standard Error (denom=n-2=8)	1940,995
MAPE (Mean Absolute Percent Error)	14.316%
Forecasts	
next period	11559.97

Based on the table above, the demand forecast value for the next period is 11,559.97 or 11,560 cars, the MAD value is 1,531.586, MSE is 3,082,470, and Bias is 163.9 while the standard error is 1,940.995. Based on this output, it can be seen from MAPE (Mean Absolute Percent Error) that the error rate for using this method is 14.316%.

Trend Analysis Method

Trend analysis is a forecasting method that uses trends in data to predict future values. Trend analysis assumes that the future will follow the same pattern as the past, and tries to determine trends in the data to use in forecasting the future. Here are the results of the calculations:

Table 4. Calculation Results With QM for Windows
Trend Analysis Method

MEASURE	VALUE	FUTURE PERIOD	FORECAST
Error Measures		13	11563,18
Bias (Mean Error)	0	14	11659.06
MAD (Mean Absolute Deviation)	1295,177	15	11754.93
MSE (Mean Squared Error)	2298573,0	16	11850,8
Standard Error (denom=n-2=10)	1660,809	17	11946,68
MAPE (Mean Absolute Percent Error)	12.359%	18	12042.55
Regression line		19	12138,43
SALES = 10316.82		20	12234,3
+ 95,874 * Time(x)		21	12330,17
Statistics		22	12426.05
Correlation coefficient	0.213	23	12521.92
Coefficient of determination (r^2)	0.045	24	12617,8
		25	12713,67
		26	12809.55

From the table above it is found that the forecast value for the next period is 11,563.18 or 11,563 cars, the MAD value is 11,754.93 , the MSE value is 11,850.8 , Bias (Mean Error) is 0 and standard error = 1,660.809 . Based on the output, it can be seen that MAPE (Mean Absolute Percent Error) is a forecasting error rate of 12.359%.

Analysis of Selected Forecasting Methods

After the three forecasting methods have been used, the next step is to determine which method is the most effective and has the smallest error rate but has a large forecasting value.

From these methods, the best method was then chosen, namely by using forecasting error analysis (standard error) . Calculation of forecasting errors is done using the Mean Absolute Percentage Error (MAPE). To facilitate the following selection process, a recapitulation of forecasting accuracy calculations using the moving average , exponential smoothing and trend analysis methods is made, which can be seen in the following table:

IMPLICATIONS

Table 5. Calculation Recapitulation

No.	Method	MAPE	Forecasts
1	Moving Averages	16.69%	12.167
2	Exponential Smoothing	14.326%	11,560
3	Trend Analysis	12.359%	11,563

Based on the table above, data processing gives better results (has the smallest standard error) so we can compare that in terms of error rate, the *Trend Analysis method* has a smaller error rate (MAPE = 12.359%) has a fairly large forecasting value of 11,563 cars, compared to other

methods moving average (MAPE = 16.69%) forecasting value of 12,167 cars and Exponential Smoothing (MAPE = 14.326%) forecasting value of 11,560 cars.

After the forecasting calculations have been carried out, the method chosen is the Trend Analysis forecasting method, because it has the smallest error rate compared to other methods. The sales forecast for Honda cars is 11,563 cars/month, meaning that PT. Honda Prospect Motor must be able to provide as many as 11,563 Honda cars/month so as not to experience a shortage or excess product supply, and be able to meet all consumer demands for sales of Honda cars so that the company can obtain profits as expected.

CONCLUSION

To do forecasting , we can use the Moving Average , Exponential smoothing and Trend Analysis methods to get the smallest value from the forecast. Based on the collection and processing of data and the analysis that has been carried out, it can be compared that in terms of error rate and sequencing, Trend Analysis has the smallest error rate compared to the other three methods.The Trend Analysis method has a MAD value of 11,754.93 , an MSE value of 11,850.8 , a Bias (Mean Error) of 0 and a standard error = 1,660.809 . MAPE (Mean Absolute Percent Error) , namely the forecasting error rate of 12.359%, it can be concluded that the chosen method is the Trend Analysis method. Based on the forecasting analysis, the number of Honda car sales is 11,563 cars/month so as not to experience a shortage or oversupply of Honda cars.

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