

1 Introduction

2 Counts Analyses

3 Analysis of *Wait Time: Delivery Date Minus Order Date*

4 APPENDIX

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4 APPENDIX

# An Analysis of Troy Teslike's Spreadsheet Data

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## 1 Introduction

The analysis of such a rich supply of Tesla Model 3 spreadsheet data found here ([https://docs.google.com/spreadsheets/d/1YeLTMxFt9Lh8mndZhjOqrzFfWQ\\_r5T9LS-l3gQzPXck/edit#gid=0](https://docs.google.com/spreadsheets/d/1YeLTMxFt9Lh8mndZhjOqrzFfWQ_r5T9LS-l3gQzPXck/edit#gid=0)) is only made possible through the sustained and ongoing maintenance efforts of Troy Teslike. Troy has collected up to 34 pieces of information (data fields) for each Username ordering and completing purchase of a Tesla Model 3 vehicle. I am certainly indebted to Troy for making this analysis possible at all.

Analyses below are carried using the R statistical programming language (<https://www.r-project.org/>) language in conjunction with the integrated programming environment offered by Rstudio (<https://www.rstudio.com/products/rstudio/download/>). R is completely open source while RStudio has versions which are open source.

### 1.1 Usernames & Order Dates

Troy's spreadsheet as of today, March 11, 2022, contains 3738 entries (rows). These 3738 data entries comprise 3719 unique Usernames. In fact, as discussed further in the APPENDIX there is a degree of ambiguity concerning the Username variable.

Order dates range from March 31, 2016 to March 11, 2022. At this point in time we observe 3738 entries.

## 2 Counts Analyses

### 2.1 Model 3: Order & Delivery Numbers per Year

Order & Delivery Counts of  
Tesla Model 3 by Year

<b>Year</b>	<b>Ordered</b>	<b>Delivered</b>
2016	4	0
2017	6	3
2018	1582	1578
2019	705	695
2020	379	387
2021	861	659
2022	201	136
Total	3738	3458

## 2.2 Model 3 Orders:

### 2.2.1 Stratified by Trim Level

Counts for Trim Level [2016 thru 2022 to date]

<b>Trim</b>	<b>count</b>	<b>%</b>
Model 3 LR AWD	1717	45.9
Model 3 LR	672	18.0
Model 3 Performance	641	17.1
Model 3 SR+	556	14.9
Model 3 MR	127	3.4
Model 3 SR	25	0.7
Total	3738	100.0

### 2.2.2 Stratified by Trim Level & Year

Counts for Trim Level Stratified by Year

<b>Trim</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Total</b>
Model 3 LR	2	5	628	36	1	0	0	672
Model 3 LR AWD	2	0	613	273	183	493	153	1717
Model 3 Performance	0	1	218	196	84	114	28	641

<b>Trim</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Total</b>
Model 3 MR	0	0	121	6	0	0	0	127
Model 3 SR	0	0	2	18	5	0	0	25
Model 3 SR+	0	0	0	176	106	254	20	556
Total	4	6	1582	705	379	861	201	3738

## 2.2.3 Stratified by Paint Color

Counts for Paint Color [2016 thru 2022 to date]

<b>Paint Color</b>	<b>count</b>	<b>%</b>
Pearl White Multi-Coat	1046	28.0
Midnight Silver Metallic	868	23.2
Deep Blue Metallic	760	20.3
Red Multi-Coat	498	13.3
Solid Black	401	10.7
Silver Metallic	98	2.6
Obsidian Black Metallic	58	1.6
	9	0.2
Total	3738	100.0

### 2.2.3.1 Remarks

- Note there are nine entries lacking a paint color designation.

## 2.2.4 Stratified by Paint Color & Year

Counts for Paint Color Stratified by Year

<b>Paint Color</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Total</b>
Pearl White Multi-Coat	0	2	238	260	160	323	63	1046
Midnight Silver Metallic	1	1	358	129	95	211	73	868
Deep Blue Metallic	1	1	360	149	54	163	32	760
Red Multi-Coat	0	1	287	74	39	82	15	498
Solid Black	0	0	185	88	31	80	17	401

<b>Paint Color</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Total</b>
Silver Metallic	1	1	96	0	0	0	0	98
Obsidian Black Metallic	1	0	57	0	0	0	0	58
	0	0	1	5	0	2	1	9
Total	4	6	1582	705	379	861	201	3738

### 2.2.4.1 Remarks

- Again note there are nine entries lacking a paint color designation.

## 2.2.5 Stratified by Country

Model 3 Orders by Country [2016 thru 2022 to date]

<b>Country</b>	<b>count</b>	<b>%</b>
USA	3303	88.4
Canada	306	8.2
United Kingdom	43	1.2
Other (include country together with city)	38	1.0
Germany	12	0.3
Belgium	6	0.2
Norway	6	0.2
France	5	0.1
Spain	4	0.1
Sweden	4	0.1
Switzerland	4	0.1
Japan	2	0.1
Netherlands	2	0.1
Austria	1	0.0
China	1	0.0
Italy	1	0.0
Total	3738	100.0

### 2.2.5.1 Remarks

- Within Troy's spreadsheet American Model 3 orders, as expected, comprise the vast majority of orders. The next section details Country = "USA" Model 3 orders by Region of the Country.

## 2.2.6 Stratified by Region of the Country

It is convenient to divide the 50 United States into 9 regions. I have employed the following common Region designation defined here (<https://www.legendsofamerica.com/ah-geosum/>). For Tesla Model 3 purposes it will be convenient to modify the aforementioned assignment of states to regions by assigning California its own distinct region.

Model 3 Orders by Region of the Country [2016 thru 2022 to date]

<b>Region</b>	<b>count</b>	<b>%</b>
California	933	28.2
South	598	18.1
Midwest	399	12.1
South West	368	11.1
Mid Atlantic	348	10.5
Pacific Northwest	238	7.2
Rocky Mountain	173	5.2
New England	163	4.9
Great Plains	58	1.8
NA	15	0.5
Alaska & Hawaii	10	0.3
Total	3303	100.0

### 2.2.6.1 Remarks:

- 15 entries are unidentified with respect to Region of the Country.

## 2.2.7 Stratified by Region of USA & Year

Model 3 Orders by Region of the Country[2016 thru 2022 to date]

<b>Region</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>	<b>2022</b>	<b>Total</b>
California	1	3	416	193	79	193	48	933
Midwest	1	0	203	58	38	82	17	399
Pacific Northwest	1	1	126	41	21	38	10	238
Rocky Mountain	1	0	74	46	14	31	7	173
Mid Atlantic	0	1	156	58	40	75	18	348
South	0	1	253	105	63	143	33	598
Alaska & Hawaii	0	0	2	3	2	3	0	10
Great Plains	0	0	25	7	6	17	3	58
New England	0	0	87	23	13	33	7	163
South West	0	0	136	75	41	87	29	368

Region	2016	2017	2018	2019	2020	2021	2022	Total
NA	0	0	4	5	2	3	1	15
Total	4	6	1482	614	319	705	173	3303

### 2.2.7.1 Remarks:

- Very few Model 3 orders derive from years 2016 and 2017. For that reason the calculated “**Median Wait Time (Days) by Region of the USA & Year**” section, below, will exclude years 2016 and 2017 from consideration. In addition, entries with missing “Region” values will also be eliminated as well as entries for which it is impossible to calculate a wait time.

## 3 Analysis of *Wait Time*: **Delivery Date Minus Order Date**

### 3.1 Wait Time by Region of the USA

Below we calculate *wait time* for each Region = “USA” spreadsheet entry subject to:

- Both delivery and order dates are available.
- Order date is January 1 2018 or later.
- Wait time is greater than zero days. Several entries corresponded to **negative** wait times and so removed from consideration.
- Calculated wait times exceeding 1 year were deemed unreliable and so removed from consideration.

Waiting Time Statistics by Region of the Country [2016 thru 2022 to date]

Region	Median	Mean	25th Percentile	75th Percentile	Interquartile Range	N
California	42.0 days	45.2 days	24 days	60 days	36 days	865
South	45.0 days	50.0 days	27 days	64 days	37 days	555
Midwest	47.0 days	50.3 days	28 days	65 days	37 days	376
South West	46.0 days	47.8 days	27 days	66 days	38 days	327
Mid Atlantic	48.0 days	54.2 days	29 days	74 days	45 days	321
Pacific Northwest	44.5 days	50.1 days	26 days	66 days	40 days	222
Rocky Mountain	44.0 days	48.5 days	24 days	70 days	46 days	163
New England	55.0 days	62.7 days	36 days	82 days	46 days	151

Region	Median	Mean	25th Percentile	75th Percentile	Interquartile Range	N
Great Plains	47.5 days	54.2 days	35 days	70 days	34 days	52
Alaska & Hawaii	69.0 days	67.8 days	57 days	84 days	27 days	10
Total	NA days	NA days	NA days	NA days	NA days	3042

### 3.1.1 Remarks:

- The **median** is listed first above as it generally a more *robust* measure of “central tendency” than is the **mean**. Recall when data is ordered from its smallest value to its largest value, the **median** is defined to be the “middle” value; e.g., the value where half the data values will be larger than the **median** and half the data values will be smaller than the **median**.
- The **Interquartile Range** is the length of the interval centered about the **Median** commencing from the 25th Percentile and ending at the 75th Percentile. This interval contains about half of the data observed. For example, for the Region = “California”, we can expect about half of the 865 California wait times to lie between **24 days** and **60 days** while approximately a quarter of the California wait times can be expected to be less than **24 days** and another quarter of California wait times can be expected to be greater than **60 days**.

## 3.2 Median Wait Time (Days) by Region of the USA & Year

Median Wait Time by Region of Country over Years: 2018 through 2022 to date

Region	2018	2019	2020	2021	2022
California	43.0	28	34.0	52	46.0
South	50.0	27	45.0	52	43.0
Midwest	55.0	21	36.5	49	51.5
Mid Atlantic	65.0	25	41.5	53	46.5
South West	61.0	26	47.0	44	49.0
Pacific Northwest	52.0	26	38.0	60	46.0
New England	75.0	24	43.0	42	38.0
Rocky Mountain	72.0	22	33.0	40	51.0
Great Plains	57.5	25	40.0	57	NA
Alaska & Hawaii	67.5	34	101.0	74	NA

## 4 APPENDIX

### 4.1 Username Ambiguity

A quick analysis reveals 18 Usernames each of which is associated with more than one row entry of Troy's spreadsheet file. In particular, this specific set of Usernames generate 37 entries in the spreadsheet. The Usernames associated with more than one spreadsheet entry are reported below.

## Usernames Associated with Multiple Entries of Troy's Spreadsheet

Username	City.or.town	State.or.Province	Order.date..	VIN.Date	Trim.level	Paint.color
aces	Vancouver	BC	2018-08-05	2018-09-19	Model 3 LR AWD	Deep Blue Metallic
aces		CA	2021-07-01	2021-07-13	Model 3 LR AWD	Pearl White Multi-Coat
Anonymous	Sunrise	FL	2018-06-28	2018-08-09	Model 3 LR AWD	Pearl White Multi-Coat
Anonymous	Bay Area	CA	2021-02-01	2021-03-24	Model 3 LR AWD	Pearl White Multi-Coat
Anthony99994	Phoenix	AZ	2019-12-08	2019-12-19	Model 3 SR+	Pearl White Multi-Coat
Anthony99994	Phoenix	AZ	2021-06-22	2021-07-16	Model 3 LR AWD	Pearl White Multi-Coat
boomboom		IA	2018-06-27	2018-08-25	Model 3 LR AWD	Obsidian Black Metallic
boomboom		NJ	2021-03-08	2021-03-17	Model 3 LR AWD	Pearl White Multi-Coat
Brian	Burbank	CA	2019-09-05	2019-09-23	Model 3 Performance	Deep Blue Metallic
Brian	Seattle area	WA	2021-03-08	2021-03-18	Model 3 LR AWD	Midnight Silver Metallic
James88	Orlando	FL	2019-05-20	2019-06-14	Model 3 LR	Solid Black
James88	Orlando	FL	2019-05-20	2019-06-13	Model 3 LR	Solid Black
JJ		MA	2018-04-18	2018-05-24	Model 3 LR	Pearl White Multi-Coat
JJ	Los Angeles	CA	2021-06-27	2021-08-02	Model 3 SR+	Pearl White Multi-Coat
Mark57	OKC	OK	2020-10-22	2020-11-24	Model 3 LR AWD	Red Multi-Coat
Mark57	OKC	OK	2021-01-21	2021-02-06	Model 3 LR AWD	Deep Blue Metallic
MB	Staten island	NY	2018-06-29	NA	Model 3 LR AWD	Solid Black
MB	Costa Mesa	CA	2021-12-04	NA	Model 3 LR AWD	Solid Black
NR	Minneapolis	MN	2019-05-20	2019-06-01	Model 3 LR AWD	Midnight Silver Metallic
NR	Las Vegas	NV	2021-12-16	NA	Model 3 LR AWD	Pearl White Multi-Coat
PatrickM	Fort Collins	CO	2018-01-17	2018-01-23	Model 3 LR	Deep Blue Metallic
PatrickM	Fort Collins	CO	2018-01-17	2018-01-23	Model 3 LR	Deep Blue Metallic
PatrickM	Salt Lake City	UT	2019-08-07	2019-09-18	Model 3 Performance	Pearl White Multi-Coat
PR	Charlottesville	VA	2019-04-28	2019-05-01	Model 3 SR+	Solid Black
PR	Charlottesville	VA	2019-08-14	2019-09-11	Model 3 Performance	Midnight Silver Metallic
Raph			2021-04-16	2021-05-05	Model 3 LR AWD	Pearl White Multi-Coat
Raph	Québec	QC	2021-11-12	NA	Model 3 SR+	Solid Black
Superspectral	Ann Arbor	MI	2018-07-24	2018-09-10	Model 3 Performance	Red Multi-Coat
Superspectral	Ann Arbor	MI	2018-07-24	2018-09-07	Model 3 Performance	Red Multi-Coat
TK	Bay Area	CA	2018-08-10	2018-09-07	Model 3 Performance	Midnight Silver Metallic

Username	City.or.town	State.or.Province	Order.date..	VIN.Date	Trim.level	Paint.color
TK	Col. Springs	CO	2018-08-17	2018-08-25	Model 3 LR	Solid Black
V__2		FL	2018-10-20	2018-12-07	Model 3 MR	Midnight Silver Metallic
V__2		FL	2019-02-02	2019-02-07	Model 3 LR AWD	Midnight Silver Metallic
WhiteFang	CT	CT	2018-05-20	2018-07-19	Model 3 Performance	Deep Blue Metallic
WhiteFang	OC	CA	2018-12-11	NA	Model 3 MR	Pearl White Multi-Coat
Zeke	Seattle	WA	2018-06-28	2018-09-20	Model 3 LR AWD	Red Multi-Coat
Zeke	Portland	OR	2019-06-01	2019-06-05	Model 3 Performance	Midnight Silver Metallic

## 4.2 Remarks:

- Examine the first Username “aces” appearing above. Does “aces” denote one or two different individuals? The two order dates corresponding to “aces” are nearly three years apart. But the first “aces” apparently resides in Canada while the second “aces” appears to reside in California. This Username may or many not represent two different individuals, but for our purposes the distinction is irrelevant.
- There may be several Usernames with double entries. For example, Username “James88” may have been erroneously entered into the spreadsheet twice. Examining the two entries associated with “James88” reveals the only difference to be a VIN date difference of one day. One entry should probably be dropped. The same appears to be true of Username “Superspectral” as well.
- “PatrickM” is the only Username associated with three entries in the spreadsheet. In all likelihood one of the first two entries for “PatrickM” should be dropped.
- “TK” may represent two distinct individuals sharing the same Username.