

Business Data Management
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Lecture 6
Revenue analysis presentation

Professor G. Venkatesh: We have done some homework on the first dataset, which is about revenue analysis, and can we see the trend something about this BS4, BS6 transition? Is there something about COVID that is coming out? And for those parts which are BS4, BS6 the parts of 3 and 8, those parts, do we see any seasonality sometimes and do we see a regional, from the regional sales distribution do we see anything, can we make out anything from the regional sales distribution. On this we did some work and Milind do you want to share what our analysis shows and with Siva's comments.

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Monthly/ Quarterly/Annual Revenue - Two Years								
Month	2019-20	2020-21	% Change	2019-21	Quarter	2019-20	2020-21	% Change
Apr	231.30	0	-100.00%	231.30	Grand Total			
May	266.95	16.85	-83.69%	263.80	Q1	753.79	108.48	-85.61%
Jun	255.53	91.64	-64.14%	347.17	Q2	543.57	310.32	-42.91%
Jul	175.00	133.14	-23.92%	308.14	Q3	657.62	554.97	-15.61%
Aug	191.49	90.49	-52.74%	281.98	Q4	487.42	696.08	42.81%
Sep	177.08	86.67	-51.05%	263.77	Grand Total	2,442.40	1,669.86	-31.63%
Oct	227.38	175.41	-22.86%	402.79				
Nov	248.40	181.43	-26.98%	429.90				
Dec	191.77	198.13	9.00%	379.91				
Jan	190.72	199.92	4.82%	390.64				
Feb	182.82	245.98	27.57%	438.80				
Mar	103.88	250.19	140.85%	354.07				
Total	2,442.39	1,669.86	-31.63%	4,112.26				

All Revenue Figures are in INR Lakhs



Professor Milind Gandhe: Here is what we did. We looked at the revenue from all three. We looked at it from a monthly basis and quarterly basis and annual basis for the two years and wanted your sense of, so the red cells are the cells that are the minimum in the year.

Professor G. Venkatesh: No, the thing that we have done Siva based on whatever you present to and talk to us is that we did not put all the 24 months in one straight line. We organize it in some, slightly in a tabular form like this. But if we put 12 months of the calendar year and then we took the corresponding 12 months of the next calendar, I mean, next financial year, we put them next to each other April next to April, May next to May.

The thinking basically was that if there is seasonality or whatever it is but the monthly information, if May of one year and May of the next year, there should be some correspondence. Let us see whether between May of one year and May of the next year, is there an increase or a decrease in revenue. So, that should tell us something. That is basically, that is the philosophy on which we have built this. Hope this makes sense. I mean, is this a normal way of doing things or does it make sense.

Professor Siva Kumar Padmanabhan: Yeah, it does. It does make sense. And companies use this quite a lot. If you look at your even annual results, announcements, etc, they always go quarter on quarter, which means this quarter of this year compared to the same quarter of the last year. So, that provides you quite a bit of insight into trying to take out the seasonality factor and try to compare what happened at this time of the year.

If you see in this table, it is clearly obvious that 2020-21 has been much worse than similar months of the previous year almost for all the months. So, we can clearly see that negative trend.

Professor G. Venkatesh: That is all COVID I presume, COVID impact.

Professor Siva Kumar Padmanabhan: Yes, absolutely. And then we can start recovery over the last couple of months.

Professor G. Venkatesh: Would you call this a V shaped something recovery, is it, could you describe this?

Professor Siva Kumar Padmanabhan: Yes. It does look like that. If you see the, we can discount March because March already the COVID impact was there in the previous March. But if you just look at February, I think that is a good, or December to February, you can see that the volumes are quickly rising in 2020-21 over the corresponding period of the previous year, which shows that the recovery was starting to become weak. But then of course, this data does not show the second wave which happened from October to March 2021. We probably again, now it has become a W shape more like, because we had a down, we had an up and then we had a down again and then hopefully we are now on the last leg of the W.

Professor Milind Gandhe: Right. And I think this sort of image that you described Siva is perhaps a little easier to see on the quarter three. In this quarter-wise table I think Q4 there seems to be something positive going on.

Professor Siva Kumar Padmanabhan: Yes, absolutely. Yeah, the quarter show some more aggregate view showing that a severe downfall in quarter 1 due to COVID and then persisting into quarter 2 starting to become less of a major issue in quarter 3, but then really starting to come back in quarter 4.

Professor Milind Gandhe: But at an aggregate level 2021 was still below 19-20 looks like.

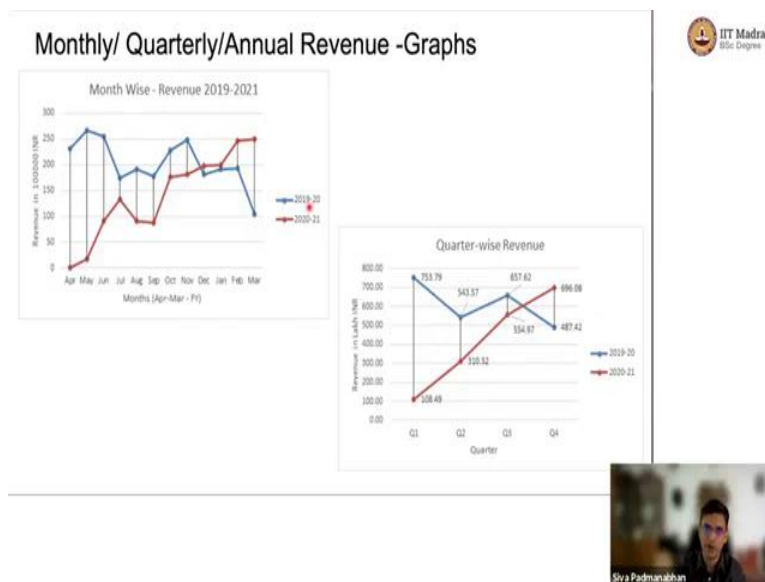
Professor Siva Kumar Padmanabhan: Yes. If you see the overall sales has come down 31 percent. So, that is a better show. The way you have shown it is nice, because the total line shows the reduction of about 31 percent of the revenue in 2020-21 due, mostly due to the impact of COVID in the, across the whole automotive industry, this has been a major impact.

Professor Milind Gandhe: And you are already sort of alluded to the second wave in the current financial year. When we will look at the results for the current financial year, we will compare them with 2021 is it or with 19-20.

Professor Siva Kumar Padmanabhan: Yeah. That is a great question. Ideally, most companies what they are doing now, especially even in the IT industry and so on, when we talk about comparable, we are comparing 19-20, because that was a normal year, most of it was a normal year, except the March when the COVID started to hit.

So, companies are almost dropping 2021 as an abnormal year and not something that you want to compare with. They are going back two years to compare a similar quarter or month with what happened in 19-20, because that was a more normal year. So, as we get back into normalcy at this point, It is more meaningful to compare 19-20 rather than compare with 20-21.

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Professor Siva Kumar Padmanabhan: Yes. This is very illustrative. Thanks for doing this because this is really showing the inherent seasonality of the industry. If you look at 2019-20 which is a more normal year, just ignore the march month, but everything else. It shows that the first quarter of the financial year this April-June is very busy for companies such as ours which or ACE gears, because ACE gears is making gears, gear assemblies that then go into finished vehicles and the sales of finished vehicles are highest during the festive season which is September, October, November.

If the vehicle sales are very high in September, October, November, the transmissions may need to be made probably in June, July or August, and the components that go into the transmissions need to be more of those needed in April, May, June. That is the pattern you see in this industry is about four to five months ahead of the actual demand peak of the finished vehicle, the demand peak in the component industry. And similarly, you see another little peak towards November as new year sales happen in January, February, March. The last quarter is typically slower, because

you are not having a lot of production at that point because that reflects the sales in April-May for the finished vehicles.

Professor G. Venkatesh: COVID was a double whammy in that sense. It came in April, the first wave, exactly the time when you needed to peak your production.

Professor Siva Kumar Padmanabhan: Yes, absolutely. Yeah, it was very major impact, because usually when you get your good sales that is when it hit in the industry.

Professor Milind Gandhe: And this what you were explaining to us Siva at least to me is more clearly visible in the quarter chart, because I think there is too much detail in this monthly chart, but in this chart, I can see very clearly Q1 and Q3 are sort of peaks.

Professor Siva Kumar Padmanabhan: Yes. I think that it is important to choose the right time dimension, because then it can show you the trends at an aggregate level without all the noise that comes when you look month on month. For example, July, from July to August in the previous monthly chart, it looks like an increase. But it is not a big deal, because when you look at the overall quarter you know that that noise is then taken out and we know that the peak was down.

Professor G. Venkatesh: Also, quarter boundary is important from a financial perspective for company. Presumably they will do things to ensure that their quarterly sales number is within the plan number or whatever. They will push out sales. They will do something, incentivize something or something else to make sure that they get minimum.

Professor Siva Kumar Padmanabhan: That is very true the stock market provides a lot of attention to quarterly numbers, results announcements and companies will have to make sure every quarter they manage expectations very closely with analysts and shareholders and so on and make sure that they have predictable performance on quarter-by-quarter basis.

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Gear Assembly Based on Production and Sales Quantity - Two Years

Production Quantity			
Month	2019-20	2020-21	Grand Total
Apr	52,000	0	52,000
May	58,000	5,000	63,000
Jun	57,000	13,500	70,500
Jul	47,500	21,500	69,000
Aug	41,000	18,500	59,500
Sep	41,000	20,500	61,500
Oct	51,000	27,000	78,000
Nov	57,500	33,000	90,500
Dec	49,750	37,000	86,750
Jan	42,850	39,000	81,850
Feb	39,750	45,500	85,250
Mar	21,500	49,000	70,500

Sales Quantity			
Month	2019-20	2020-21	Grand Total
Apr	54,932	0	54,932
May	58,121	3,189	61,310
Jun	58,676	15,617	74,293
Jul	47,291	21,534	68,825
Aug	42,426	17,195	59,621
Sep	43,247	16,244	59,491
Oct	53,658	29,803	83,461
Nov	60,671	33,558	94,229
Dec	41,502	36,899	78,401
Jan	44,959	38,344	83,303
Feb	45,795	46,638	92,433
Mar	22,555	50,616	73,171



Month Wise Production and Sales Quantity -Graphs



Professor G. Venkatesh: In this chart Siva what we are showing basically is how we saw that sales basically have been going up and down because of this BS4, BS6, COVID and other thing, how did it impact production. We have tried to put the production on one side and the sales on other side and want to see how well ACE gears has been in terms of managing production.

Presumably they have not changed their production as sales have reduced, but they have tried to manage their production very carefully. Not to reduce it too much so that you can kind of even it out, smooth it out something like that. How well have they done is what we are trying to look at it first in the form of table and then maybe the graph might show it in a better way.

Professor Siva Kumar Padmanabhan: Yes. This is a very interesting chart again. So, I think it is a very good way to compare things. What we said in the beginning is kind of illustrated here. The sales quantity tends to fluctuate very rapidly. For example, you see more ups and downs in terms of the sales quantities, but the production quantities almost follow the sales quantity. The overall shape of the graph is somewhat similar.

But it is a smoother curve what do you see in the production compared to what you see in the sales, because as we said before, we cannot affect changes in the factory at the same pace as the changes that happen in the sales side given that the availability of labor, availability of material, availability of production capacity is not that easy to change overnight. That is the kind of thing you see overall somewhat smoother curves. For instance, if you see the orange curve, you see a dip in between in September and then arise again. You do not see that in the production, because we sort of smooth that part out.

Professor G. Venkatesh: Yeah, and I guess the fact that Jan, Feb, March is, April, May, June are historically we know that those are the busy months, so production has been planned accordingly. April, May, June high, then slower down again and then high again and then slow again. This is all part of the planning because we know that that seasonality is there every year.

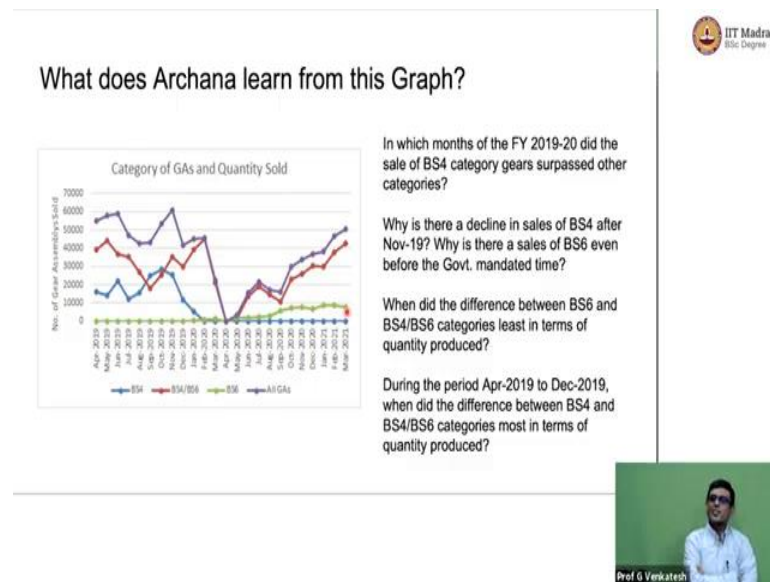
Professor Siva Kumar Padmanabhan: Absolutely.

Professor G. Venkatesh: But if you look at the 19-20 year, the November to December there is a sharp, very sharp drop. But if you look at the production from November to December, it did not drop that much, [Not Audible] it has gone from November to December to January.

Professor Siva Kumar Padmanabhan: Yes. Yeah, that is another good example of smoothing that we are trying to do.

Professor G. Venkatesh: Yeah

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Professor Milind Gandhe: And then this was the same I think what we had done by category we had, at that, now we are looking at quantity sold instead of revenue. I think that is the only difference, right?

Professor G. Venkatesh: Yeah. I think we are seeing here is that some, I mean, there is a, some cross over BS4 to BS6.

Professor Milind Gandhe: Yes.

Professor G. Venkatesh: This chart Siva shows basically just like what we showed in revenues for categories, we try to do the quantities for categories so BS4 quantities, BS6 quantities, and BS4, 6 quantities. Now, there are some peculiar shapes and that like for example for BS4 there is a hump and then it falls off, of course, it should fall off because we want to stop producing BS4 after some time, but there is hump before it falls off. And similarly, the BS4, 6 also there is some humps. So, any reaction so this, I mean, why we have these funny shapes in these curves.

Professor Siva Kumar Padmanabhan: Yeah. That is an interesting question. In fact, what happened with BS4 was that as you just, as you very rightly said knowing that those vehicles cannot be made or cannot be sold after April 1st, there was a bit of a rush by the manufacturers around the end of the year to clear and sell as many products as possible, because they knew that their pipeline or their pipeline is going to be limited at the end of the year. There was a rush to

produce and sell as many products or vehicles as possible towards the end of 2019 around December, January time.

With that they were also placing orders on the component suppliers in September-October, which was very high compared to the normal sort of way we see, because they were trying to clear the whole pipeline and produce and sell as many as possible to compensate for the last quarter which was going to be weak. So, that is the hump you see. But that is a good observation that you have caught that that did happen with the BS4 vehicles.

And then, of course, you see the impact of COVID very sharp drop in sales around April-May and then a very slow pickup that happens afterwards. Then you also see that the BS6 gears are contributing but not at the level of the BS4 yet, because it takes time to establish those products.

Professor G. Venkatesh: That hump you did not see the revenue curve primarily, the observation might be that this quantity is coming from the low-price gear assemblies, which is why we did not see the hump there.

Professor Siva Kumar Padmanabhan: Yes, absolutely.

Professor G. Venkatesh: Okay.