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Applied Econometrics

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Lecture No. #08

Probability Theory (Contd.)

To actually have further clarity on how we solve the problem I would always prefer to have graphical representation. So the same problem we can actually you know create a graph around it and we can actually get conceptual clarity how we actually solve the problem.

(refer time: 00:45)

So let us say in the previous problem we had all these different age groups, right. So my age groups I had say 75 and above, then I had 65, uh 65 to 74 and then I had another age group and other age group. Let me check the numbers here uh 0 to 17, 18 to 44, 45 to 64 and this was 18 to 44 and 0 to 18. These are my different age groups, right. Now how I will try to actually visualize is that I will see the number of people died in each of the age group.

So here the number of people died in the age group of 75 years and above is say 3268 3263 and the one above 65 to 74 is 1683. And basically it is gradual decrease, right and the above, the one above is 1581. And then there is a drastic fall 18 to 44. And in the first age group, it is pretty less only 3. So let us say 0 to 18 I have okay, let us first draw this one. So this is the total number of people died in this age group.

So this is the total number of people died, right? This is the total number of people died. And let us say this is the number we have is 3263, let us say this is 3263. Whereas for 16 to 75 it is 1683, let us say this right 1683. For the one above we have 1581. So let us say this is the 1581 group, 1581. The one above we have 309, let us say somewhere here 309. The one above we have only 3, okay.

So now uh suppose I want to answer the previous question where I want to understand the number of people died with condition. Let us say I want to plot the data on condition part. So here for 75 and above, I see that it is 2089, 2289 people had underlying conditions. So if I

plot that, if I plot that so let us say I am plotting in the red color, and it will not be according to scale, but still let me try that.

So these are the people with condition. So red color is condition, red color is underlying condition. The group above number of people died with condition is 1272 something like this, let us say 1272. And the one above we had 13 1383 1343, let us say like this alright. And the one above we have 244, so like this. And the one above, all three of them.

So now if I have to calculate the, if I have to get the ask the first question where I said the underlying condition with the age group 64 to 75 with respect to age group 64 to 75. So I will have basically what I have to compute, I will use a different color. What I have to compute is that from here, I have to compute this red vis-à-vis the blue, the blue right, the red vis-à-vis the blue for for this group right, for this for this group for this group.

So essentially that would mean, that would mean the same thing that is the number we got 1272 by 1683, okay. This is essentially 1282 by 1683. So this is just basically for our understanding. So depending on what question I have, I can always kind of you know change the color here, whether it is going to be you know like the red color here is representing with people with underlying condition.

I can also say that people without condition, or I can say that I do not have information about if I go back to the file data. So I can I can use, you know any of this column to, you know compute the corresponding probability. Essentially, this is how we can visualize the idea of frequentist approach of probability. It is a simple approach, you simply count the number, you have to have a clear idea about the conditional probability.

And you know all the uh you know rules of probability and you apply those rules to get the frequentist you know the probability value using this frequentist approach. So with this, we end the lecture. And in the next lecture, we are actually going to see a very interesting concept and that is a posterior probability. It is a it is a, it is a, you know like a way ahead of what you have learned so far, and we will particularly look at the Bayes theorem. Thank you.