Business Data Management

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Lecture
Survey Data

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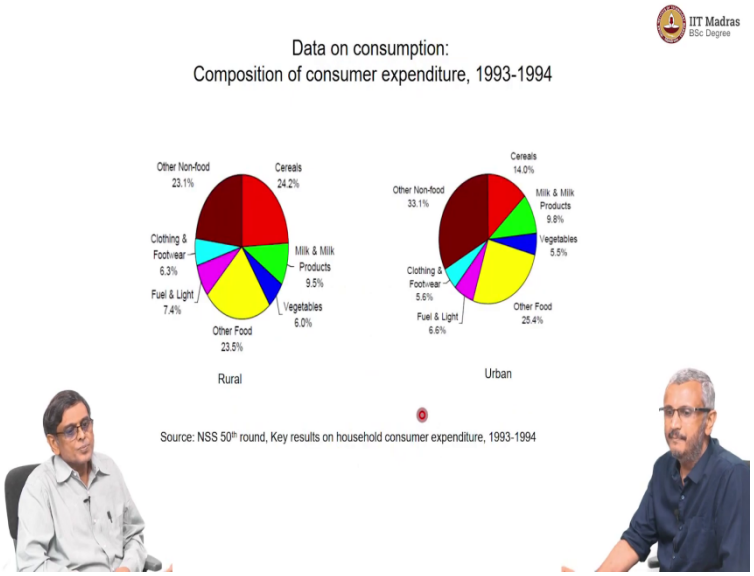

Professor. M Suresh Babu: Now, we can also see a large scale.

Professor. G Venkatesh: So, the large scale is basically.

Professor. M Suresh Babu: This is what I was referring to in terms of that National Sample Survey.

Professor. G Venkatesh: National Sample Survey.

Professor. M Suresh Babu: Results. Now.

Professor. G Venkatesh: This is the 50th round?

Professor. M Suresh Babu: This is the 50th round and I want to highlight one important factor here: this is 1993. 1991 India moved to large-scale economic reforms. So, we can say that these are the threshold of those reforms and the effect of reforms had not been felt.

Professor. G Venkatesh: Just started.

Professor. M Suresh Babu: Yeah, had not been percolated kind of a thing. Here we have for rural as well as this typical you know consumption data for rural just as well as for.

Professor. G Venkatesh: So just for my understanding and did you NSS we will cover the entire population of India.

Professor. M Suresh Babu: Yeah, yeah entire population no samples, no.

Professor. G Venkatesh: But the coverage is.

Professor. M Suresh Babu: Yes.

Professor. G Venkatesh: Coverage is across.

Professor. M Suresh Babu: Representing entire population

Professor. G Venkatesh: Representing, but samples

Professor. M Suresh Babu: Yes.

Professor. G Venkatesh: And what is the sampling I mean you will take smaller numbers?

Professor. M Suresh Babu: It is, it is basically a stratified sampling and so, you have different strata's and from different stratus you will find

Professor. G Venkatesh: What is the strata? Strata is income.

Professor. M Suresh Babu: Strata is in regions, in income and in terms of occupation.

Professor. G Venkatesh: You have to ensure that everything is covered.

Professor. M Suresh Babu: Yes

Professor. G Venkatesh: And typically, how many people would an NSS thing cover?

Professor. M Suresh Babu: Oh that is, that is huge lakhs of observations.

Professor. G Venkatesh: 10 lakhs?

Professor. M Suresh Babu: Yeah,

Professor. G Venkatesh: But still, we have it.

Professor. M Suresh Babu: It depends on survey to survey

Professor. G Venkatesh: But we have 100 crore of, 1993 must have had 100 crore, right?

Professor. M Suresh Babu: Yeah. Yeah. But it is supposed to be a good representative data in general on India's consumption because the kind of stratus that is used is supposed to be very honest. It is and it will capture a typical consumer.

Professor. G Venkatesh: So, for 100 crores maybe a few lakhs is enough? 10 lakhs, 5 lakhs?

Professor. M Suresh Babu: Yeah, yeah. The important thing is in terms of identifying the unit in terms of the within the strata, how many units to be covered in a particular geographical region, in a particular no income bracket. And then that is done in terms of both rural and urban.

Professor. G Venkatesh: And this is, fidelity is good I mean, what is the error that you might get in such a sampling?

Professor. M Suresh Babu: See, what has happened over time is that as and when income increased of the population, we get some noise because the consumption, consumption behaviour also changed. Earlier times the data was very robust. Now, what has happened is that consumption has become very dynamic. So, the kinds of inferences that we could draw earlier and the kind of inferences that we can draw now, maybe there is a limitation because the choice is set for the consumer itself.

Professor. G Venkatesh: Has expanded.

Professor. M Suresh Babu: Has expanded very much, unlike 80s or 90s.

Professor. G Venkatesh: So, what does it mean, does that mean that we have to sample more or?

Professor. M Suresh Babu: We will have to do so no, so, what we have done now is we have actually added what is known as, what we, what we call as the high frequency consumption data to this, certain commodities are consumed, higher in terms of frequencies means repeated consumption kind of thing. So, we look at this and then we look at that, then perhaps, we will be able to draw some inferences. Otherwise, because there is a structural change that has taken place in the economy, there is some kind of a bias.

Professor. G Venkatesh: Is this why people say that big data which is basically all this, Amazon and other guys collecting all the consumption data of everybody.

Professor. M Suresh Babu: Very important to draw.

Professor. G Venkatesh: Draw.

Professor. M Suresh Babu: Now why because there are two kinds of biases that could come here. One bias is the timing of the survey. Suppose the survey in my village, the person who came to survey me during Diwali time means my consumption will be automatically bumped. So, you should take out that bias, the survey should be conducted uniformly across the country, like you know, census operations kind of, I think. Second thing with most of this kind of consumption data is what we call a recall bias. Suppose you asked me what I have consumed in the last one month, some of the things I will not be able to tell you.

Professor. G Venkatesh: Not remember.

Professor. M Suresh Babu: I will not be able to recollect. So, I will give some approximations. And then if you ask me what.

Professor. G Venkatesh: But if you were asked today, would you know?

Professor. M Suresh Babu: Yeah. So, suppose you asked me, what did you consume in the last three months? My bias would be even more.

Professor. G Venkatesh: Correct, correct. That is true.

Professor. M Suresh Babu: So, what NSS has done is that consumption in a day, consumption in a week, consumption in a month.

Professor. G Venkatesh: Oh, I see.

Professor. M Suresh Babu: So, to minimise this thing called bias. So, generally, I would say that in India, the statistical system is very robust in terms of these surveys and we have a very well-established network for that.

Professor. G Venkatesh: So, what does it say '93, '94.

Professor. M Suresh Babu: Now, in '93- '94, we find that let us take one important thing, cereals. Rural consumption is dominated by cereals. 24.2 % of rural consumption expenditure is for cereals. There are only 14 in the city.

Professor. G Venkatesh: What does it mean? They are eating meat?

Professor. M Suresh Babu: They are eating other items, yeah.

Professor. G Venkatesh: The sugar.

Professor. M Suresh Babu: And, and that is, yeah, that is getting substituted.

Professor. G Venkatesh: We do not know the income difference between them.

Professor. M Suresh Babu: Now there is, there is one more anomaly which I want to highlight here. Look at vegetables in rural areas at 6 %. But vegetables here are only 5.5 %. We would have thought the other way round that the urban person might be having more vegetables.

Professor. G Venkatesh: True.

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: Because it is more available there or?

Professor. M Suresh Babu: So, so, there is there is a kind of a price

Professor. G Venkatesh: Or they value it more?

Professor. M Suresh Babu: Price factor and that is available and they think that it is important to consume. Or another important thing we need to keep in mind is that rural consumption is also a function of the habits that are formed, individual household.

Professor. G Venkatesh: But, just look at the cereals at 24.2 %.

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: Then milk and milk products 9.5 %.

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: Vegetables are 6 % .

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: And other food 23.5.

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: So, if you add up all this, it is quite subsidiary 24, 9, 33, 39.

Professor. M Suresh Babu: Yeah, another 20

Professor. G Venkatesh: 60 odd % in rural areas is just food.

Professor. M Suresh Babu: In terms of food consumption is low.

Professor. G Venkatesh: Is that right, I mean that is how it is?

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: And here it is, what 14 % other food?

Professor. M Suresh Babu: Yeah

Professor. G Venkatesh: 50 % here also it is 55 %.

Professor. M Suresh Babu: Yeah. So, food consumption is very high.

Professor. G Venkatesh: I suspect it will come down.

Professor. M Suresh Babu: And now it is, this is '93 '94. Yeah.

Professor. G Venkatesh: We have become richer.

Professor. M Suresh Babu: Yeah. But the change here is the other non-food expenditure in rural is very low, but other non-food expenditure in urban is.

Professor. G Venkatesh: 10 % more.

Professor. M Suresh Babu: Yeah, yeah. And I have had the one more interesting thing, the fact I want to bring out that is clothing and footwear is 6.3 % here, but here it is only 5.6 %. So, the rural people are many key retailers.

Professor. G Venkatesh: Clothing

Professor. M Suresh Babu: On clothing and footwear and all because that is the kind of consumption which we call as

Professor. G Venkatesh: Satisfaction rate consequence,

Professor. M Suresh Babu: Consequence and satisfaction out of

Professor. G Venkatesh: Celebration, and all that.

Professor. M Suresh Babu: And all these activities are related to that.

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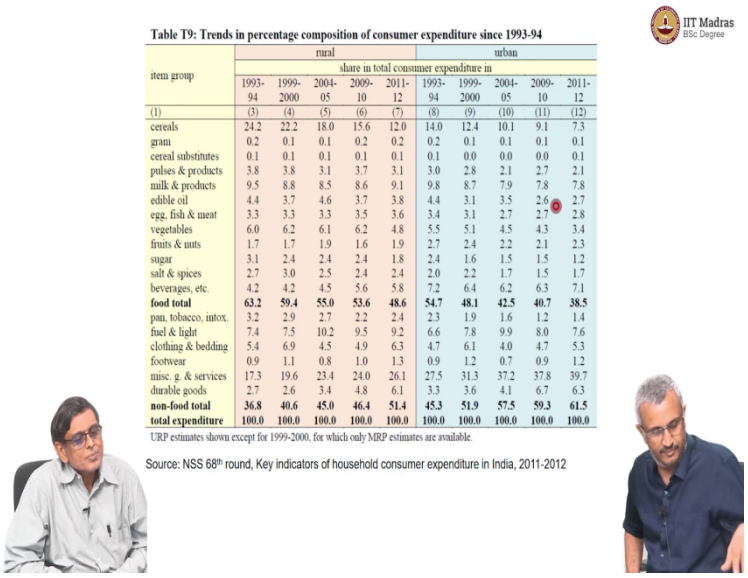

Table T9: Trends in percentage composition of consumer expenditure since 1993-94

item group	rural					urban				
	share in total consumer expenditure in									
	1993-94	1999-2000	2004-05	2009-10	2011-12	1993-94	1999-2000	2004-05	2009-10	2011-12
(1)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
cereals	24.2	22.2	18.0	15.6	12.0	14.0	12.4	10.1	9.1	7.3
gram	0.2	0.1	0.1	0.2	0.2	0.2	0.1	0.1	0.1	0.1
cereal substitutes	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.1
pulses & products	3.8	3.8	3.1	3.7	3.1	3.0	2.8	2.1	2.7	2.1
milk & products	9.5	8.8	8.5	8.6	9.1	9.8	8.7	7.9	7.8	7.8
edible oil	4.4	3.7	4.6	3.7	3.8	4.4	3.1	3.5	2.6	2.7
egg, fish & meat	3.3	3.3	3.3	3.5	3.6	3.4	3.1	2.7	2.7	2.8
vegetables	6.0	6.2	6.1	6.2	4.8	5.5	5.1	4.5	4.3	3.4
fruits & nuts	1.7	1.7	1.9	1.6	1.9	2.7	2.4	2.2	2.1	2.3
sugar	3.1	2.4	2.4	2.4	1.8	2.4	1.6	1.5	1.5	1.2
salt & spices	2.7	3.0	2.5	2.4	2.4	2.0	2.2	1.7	1.5	1.7
beverages, etc.	4.2	4.2	4.5	5.6	5.8	7.2	6.4	6.2	6.3	7.1
food total	**63.2**	**59.4**	**55.0**	**53.6**	**48.6**	**54.7**	**48.1**	**42.5**	**40.7**	**38.5**
pan, tobacco, intox.	3.2	2.9	2.7	2.2	2.4	2.3	1.9	1.6	1.2	1.4
fuel & light	7.4	7.5	10.2	9.5	9.2	6.6	7.8	9.9	8.0	7.6
clothing & bedding	5.4	6.9	4.5	4.9	6.3	4.7	6.1	4.0	4.7	5.3
footwear	0.9	1.1	0.8	1.0	1.3	0.9	1.2	0.7	0.9	1.2
misc. g. & services	17.3	19.6	23.4	24.0	26.1	27.5	31.3	37.2	37.8	39.7
durable goods	2.7	2.6	3.4	4.8	6.1	3.3	3.6	4.1	6.7	6.3
non-food total	**36.8**	**40.6**	**45.0**	**46.4**	**51.4**	**45.3**	**51.9**	**57.5**	**59.3**	**61.5**
total expenditure	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**

URP estimates shown except for 1999-2000, for which only MRP estimates are available.

Source: NSS 68th round, Key indicators of household consumer expenditure in India, 2011-2012

Professor. M Suresh Babu: Now, this is something which is overtime compact comparisons of this, that is the cereals we had 24.2 % in our earlier slide. By the time we come to 2011, '12, it has halved.

Professor. G Venkatesh: Oh, is this rural or urban?

Professor. M Suresh Babu: This is rural, and urban was 14 % earlier.

Professor. G Venkatesh: And it became 7 %, also the same.

Professor. M Suresh Babu: Halved.

Professor. G Venkatesh: So, what we guessed basically.

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: But this is cereals only, total food we have to see, total food.

Professor. M Suresh Babu: Yeah, food, food total look at food total, that is also here. See it is 63.2 % earlier that is what we calculated. Now, it does come down to 48.6 %.

Professor. G Venkatesh: 48.6 %

Professor. M Suresh Babu: And here from 54 %, it has come down to 38 %. Now, this is up to 2011 '12. That is a decade old, again within 10 years a lot of things would have changed. And what was really worrying at some point for us

Professor. G Venkatesh: So, when they do this calculation, this is average is it?

Professor. M Suresh Babu: So, what they do is basically, yeah, this is a typical rural average, yeah.

Professor. G Venkatesh: Not median, not anything, none of those statistics is this.

Professor. M Suresh Babu: No, we can, this data is available and we can use it anyway we want. We can divide it into quintiles.

Professor. G Venkatesh: Quintiles

Professor. M Suresh Babu: Quintil-wise comparison

Professor. G Venkatesh: You can do that.

Professor. M Suresh Babu: Yeah, this is all up to researchers to really squeeze the data and get insights

Professor. G Venkatesh: But this is mean, this is mean?

Professor. M Suresh Babu: This is mean, yeah. So we find that, for example, I am just picking out this egg, fish and meat. 3.3 % is more or less the same. But in urban areas we find that it has come down basically.

Professor. G Venkatesh: I know because they probably consume the same in terms of content amount.

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: But maybe the price of eggs or eggs has not gone up that much. So many factors go into this, right?

Professor. M Suresh Babu: Yeah, but there are also some kinds of doubts from these data that you know, nutritionists face. Is there a kind of protein problem that we are facing?

Professor. G Venkatesh: Less protein

Professor. M Suresh Babu: Less protein are we consuming

Professor. G Venkatesh: More carbohydrates

Professor. M Suresh Babu: and implications of that future and things of that sort. So, so, what we want to really drive here is that well, the shift from food to non-food consumption is taking place, 48 % to 51 % and within that there is a relocation.

Professor. G Venkatesh: What kind of relocation?

Professor. M Suresh Babu: Within food itself there is a relocation. For example, cereals consumption has

Professor. G Venkatesh: Gone down.

Professor. M Suresh Babu: Come down. At the same time, we find that you know, the beverages consumption has increased 4.2 % to 5.8 % and very edible oil consumption has come down people have become slightly more conscious

Professor. G Venkatesh: I guess

Professor. M Suresh Babu: on whatever. So, the idea is that we can actually draw.

Professor. G Venkatesh: We can see that the services miscellaneous goods and services, whatever that line is and durable goods, they both have gone up. So, people are consuming more services.

Professor. M Suresh Babu: Yeah. And durables are the typical consumer durables that white goods

Professor. G Venkatesh: White goods, they are buying more white goods, they are less food, more white goods and more services. More services like insurance or something.

Professor. M Suresh Babu: Yeah, all this kind of. So, I think that is consistent with an economy where incomes are growing because of consumers and so that is why we see a lot of reports saying that India is a booming market in terms of durables and entering the Indian market is very important. Things of that sort from this kind of bundle of consumption. Now, I was just telling you that we can do different kinds of analysis

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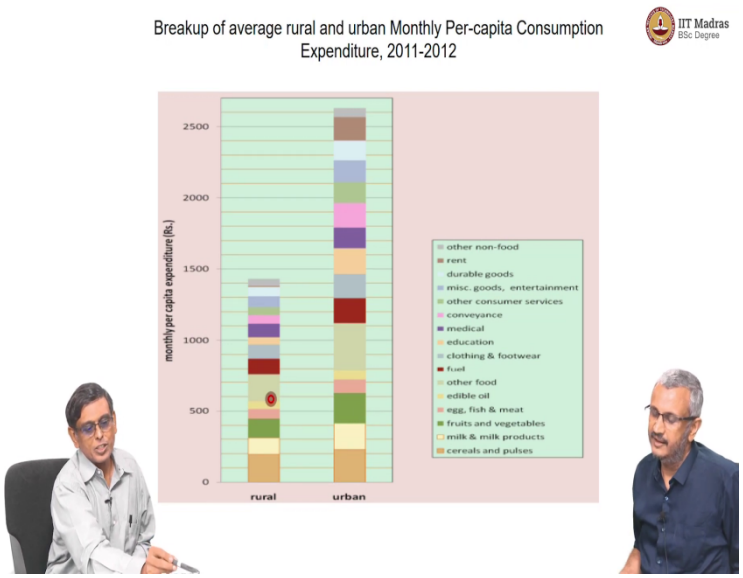

Professor. G Venkatesh: Dicing and slicing of the data, yeah.

Professor. M Suresh Babu: And here what we are doing is the average rural and urban monthly per capita consumption expenditure and again the same kind of thing in terms of different commodities. What is the %? And this is only for 2011 '12. But earlier we had a time series of that and this if we compare with the 1994

Professor. G Venkatesh: That was % in the previous chart, whereas this is the actual number.

Professor. M Suresh Babu: This is actual, actual money spent

Professor. G Venkatesh: Money spent.

Professor. M Suresh Babu: This is actual, when we look at this in rupee terms.

Professor. G Venkatesh: Rupee terms.

Professor. M Suresh Babu: Yeah. So, this is.

Professor. G Venkatesh: So, we can see they are actually, the stack for that urban area is quite high, though %, you can make out, right?

Professor. M Suresh Babu: Yes.

Professor. G Venkatesh: But if you look at the stack, this guy is at 26, 27,000 rupees, and this is at about 14,000. So actually, the urban guy is consuming, much, much, much more.

Professor. M Suresh Babu: So here, we can use this data to see how many times more urban consumers consume than the rural.

Professor. G Venkatesh: Especially item by item.

Professor. M Suresh Babu: Item by item.

Professor. G Venkatesh: So, cereals and pulses, that seems to be almost the same thing.

Professor. M Suresh Babu: Same thing, yeah.

Professor. G Venkatesh: Because how much can you eat? But milk and milk products are quite different actually.

Professor. M Suresh Babu: Yes.

Professor. G Venkatesh: And similarly, this one, whatever this is, this is clothing? Or I do not know what edible oil is? I do not know why it has gone up quite a lot.

Professor. M Suresh Babu: Yeah. So, this is another very interesting way of, you know, drawing inferences from the consumption data.

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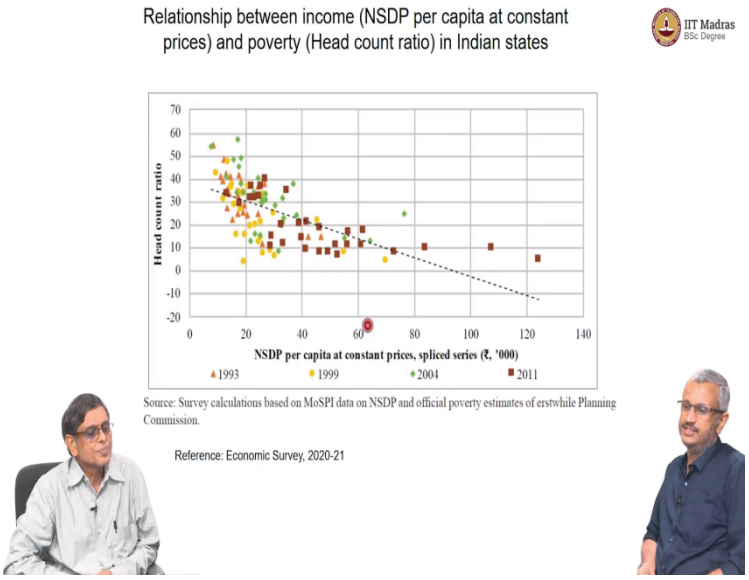

Professor. M Suresh Babu: Third kind of an inference that I want to draw is well, ultimately all of this can be related to poverty, because consumption is related to poverty. Your per capita consumption, especially in the Indian context, when we define poverty in terms of calorific value, your food consumption is extremely important. What we are seeing here is

that this is in terms of, you know, quintiles in terms of 20, 40, 60, 80 the per capita, net state domestic product NSDP is the net state domestic product. And here it is headcount ratio, headcount ratio is nothing but

Professor. G Venkatesh: When is the statement said for one state, no?

Professor. M Suresh Babu: This is for all states pooled average. It is not, not for one state per se, but an average for all states just to get an aggregate picture overtime. Headcount ratio is nothing but the % of people who are below the poverty line.

Professor. G Venkatesh: I see, headcount ratio, it is called.

Professor. M Suresh Babu: We find that well, it is nothing against common sense. But this income bracket, maximum poor. Now.

Professor. G Venkatesh: The range is between 20 and 60 % are poor there.

Professor. M Suresh Babu: Yeah. Now, there is another very, very important kind of

Professor. G Venkatesh: We can see it is coming down a bit, right? 2011 is these square boxes coming down a little bit?

Professor. M Suresh Babu: Yeah. So that is exactly the point that we are able to push these people from here to here? If we are able to do that, well, then I think our policies are having some kind of an impact in terms of reducing poverty. That is a kind of

Professor. G Venkatesh: So, each of these is one state there? I think this is in each state.

Professor. M Suresh Babu: This is the.

Professor. G Venkatesh: Because 2011 several dots are there. So presumably, these are the different states.

Professor. M Suresh Babu: Different states where an average of these quintiles or whatever it is.

Professor. G Venkatesh: Oh, okay, I understand. Yeah. So basically, we have one state, which has gone out here really far away, that is somebody there are some other states are doing very well, but then a lot of states are clustered around there.

Professor. M Suresh Babu: Yeah. So, this is another example of an inference which we can draw, using this consumption data, that is we can actually relate to poverty, and the quality of life.

Professor. G Venkatesh: Quality of life, as in this case, you have taken headcount ratio, as a representation of how many people have enjoyed a good quantity of life, right?

Professor. M Suresh Babu: Yeah.

Professor. G Venkatesh: The lower the headcount ratio, the more people are enjoying a better quality of life.

Professor. M Suresh Babu: Because you are able to consume more and we are relating consumption to living standards there. So, where does this take us? This takes us to our earlier starting point, that is, if we are to develop a theory of consumption and consumer behaviour, then we need to understand the concept of utility a little more. Because when we look at them, I will go back and go back in a minute. When we look at the consumption basket, the decision that this consumer is making is in terms of what % I should spend on different things.

Professor. G Venkatesh: Different things.