

# **PRINCIPLES OF BEHAVIORAL ECONOMICS**

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**Lecture 37**

Hello everyone, I welcome you back to the course on principles of behavioral economics. This is lecture 37. Currently, we are discussing mental accounting. After covering the basic principles of mental accounting, we are now exploring its applications. These are the various domains where we observe people applying the principles of mental accounting. Under that, we are currently discussing budgeting. Budgeting is discussed under three categories.

The first one is consumption category. The second is wealth account. And the third one is income account. In the wealth account, we also began discussing the life cycle theory or model, which is of two types: behavioral life cycle and traditional or classical life cycle theory. So we continue with discussion on wealth account.

The lifecycle model is a powerful model because it predicts which variables should affect saving and which should not. To a first approximation, the only factors that should affect the household saving rate are the age of the family members, the family's lifetime wealth, and the interest rate. These are the three factors that must impact how much a household should save or a household's saving decision. The composition of wealth holdings, the present value constant, should not have any effect. For most households, wealth consists mostly of three components.

Future income, pension wealth, and home equity. Abstracting from liquidity considerations, these three types of wealth should be nearly perfect substitutes. That is, you can always keep your money in any one of them. When withdrawing money from them, you should always be indifferent between the three. Because if all of them are

part of your wealth account, or if wealth consists of these three things, then you should ideally be indifferent between all of them. Now, consider two people with identical lifetime earnings profiles. One has \$100,000 in pension wealth; the other has no pension. Since we

mentioned that there are three types, we first begin with pension wealth. The life cycle prediction is that the person without the pension should have \$100,000 more in other savings because they are all substitutes for each other.

So, if you are not saving in a pension scheme, then you might have home equity or other investment avenues. That is, there should be one for one offset. So, that is the ideal situation. The null hypothesis is that if one estimates the change in discretionary savings with respect to a change in pension wealth, it should be minus 1. So ideally, if you are not saving in pension wealth, then of course this is discretionary savings in the sense it is completely up to you whether you would save or not.

So having identical lifetime earnings profile, if you are not saving in pension wealth, then or pension funds then you must be having investing in somewhere exactly the same amount. However, research suggests that the effect of pension wealth on other savings was not close to minus 1, it was rather positive. Adding a dollar of pension wealth slightly increased other savings. So, a positive impact of pension wealth on other savings implies that when you are increasing pension wealth or pension saving then your other savings are also increasing

other estimates for the pension saving offset have obtained the right negative sign but none were close to minus one so even though some studies have observed that the relationship between pension savings and other saving instruments are negative. That is when you increase your investment or savings in pension funds then you may decrease your investment in other funds. That is absolutely possible because we have a limited income suppose. So when we decide to save more in pension funds we may decide to less on some other investments.

So having a negative sign is absolutely right but they were not close to minus 1. People do not appear to treat pension wealth as a close substitute for other wealth categories. Then the second one is housing wealth. As in the case of pension wealth the life cycle theory assumes that home equity is fungible and therefore is a good substitute for other forms of wealth. To evaluate this part of the theory it is useful to begin with some simple facts young households accumulate liquid assets in order to make a down payment on their first house purchase Then they draw down those assets when they buy the home.

Soon thereafter, they begin to accumulate liquid assets again. So, this is how young households are observed to behave. At the same time, they build up home equity by paying off their mortgage and accumulating capital gains on their home. So, as you know, we

mentioned that initially they go for some liquid assets, using that to make a down payment. So, once you make a down payment, of course, you are building your home equity.

And then soon after that, you take the rest on a mortgage, but again, you start accumulating liquid assets. Now, as you keep on clearing your mortgages, your home equity also increases, and at the same time, you are also making some capital gains. If the wealth in their home is a good substitute for other savings, then one would expect homeowners to have less savings in other assets, holding everything else constant. However, just the opposite is true. So, if we go by the classical or traditional understanding, then what it says is that if I am saving in home equity and it is a good substitute for other savings, then of course

I have invested in home equity, I have invested in a home, so basically, if I have become a homeowner, I must be left with less money, and that's why I must have less savings in other assets. But it has not been found to be true. Homeowners non-house savings are found to be higher. along with their wealth in home equity. So this is again an interesting observation that when their home equity was increasing alongside their savings in other instruments were also increasing. They were found to be larger by researchers compared to non-homeowners.

Another way of looking at the fungibility question is to estimate the MPC from housing wealth and empirically it has been observed to be insignificant or significant but small. So here MPC again refers to marginal propensity to consume. So what people have done is that they try to find out the marginal propensity to consume from housing wealth. So, if your housing wealth increases by say one unit, then how much you would increase your consumption, right?

And in some studies or with some data, people have observed that it is insignificant, but at times they have also found it to be significant, but the coefficient is really very small. The low MPC from housing wealth is reflected in another life cycle anomaly namely that the elderly do not dissave fast enough. So first of all a low MPC from housing wealth implies that when your housing wealth increases by say 1 rupee or 1 dollar, then your consumption increases in proportionately much less. So, maybe, say if you are increasing your house wealth by 1 rupee, then your consumption increases just by 10 paise.

So, the impact is actually very small; that is the bottom line. And another implication of this is that the elderly are actually not found to dissave very fast. Homeowners over 65 rarely have any mortgage debt and so have considerable home equity they could draw

down, allowing them to increase their consumption by using their home equity. But it has been observed that they do not do so. The reluctance to spend home equity appears to be a voluntary one.

So again, a discretionary one. It is not that they are drawing down on their savings substantially. Specifically, given the fact that they do not have any mortgages. Now, we talk about another concept under wealth accounting, and that is emotional accounting. Levav and McGraw introduced the term 'emotional accounting' in 2009 to explain people's behavior in situations where people acquire increased wealth under unpleasant circumstances.

For example, when people receive money from a contentious life insurance settlement or from a lawsuit for the wrongful death of a child, or when war widows receive government recognition and some funds. So these are basically circumstances where people acquire wealth under unpleasant conditions. They proposed that such a gain has a negative affective tag attached to it, and this has important consequences as far as spending is concerned. The author suggested that people tend to adopt two strategies here.

One is hedonic avoidance, and the second is laundering. The first strategy, which is hedonic avoidance, means that people avoid spending on products that provide enjoyment because of feelings of guilt that this would arouse. It does not necessarily always have to be guilt, but at the same time, it has certain sad or bad memories associated with it. So maybe one does not feel like spending that money on enjoyment the second strategy which is complementary to this that is laundering is that people tend to spend instead on virtuous or utilitarian goods such as investing in education or making donations to charity

At times you would see that there are certain people contribute to causes or places where the names are attached to it - that this has been erected or contributed in the memory of some individual because of whom probably one received the money so these are the possibilities. Of course whether you would spend on hedonic or enjoyable matters or you would spend it on education, charity or other noble causes or not, that all also depends on your existing wealth, financial conditions. So, a poor woman, even after she receives a substantial sum from any such situations might not be in a position to go for charity or she is expected to spend it on things like on regular consumption or maybe purchase a house - more like necessities. So these are the possibilities.

We are calling it emotional accounting. This is particularly relevant when people feel some responsibility for the unpleasant circumstances and is related to the moral cleansing notion.

So if there is any sense of guilt associated with the unpleasant circumstances, then these kinds of activities are also associated with or caused by a sense of moral cleansing. People also often acquire assets as a result of a social interaction of some type.

Some researchers have investigated the reactions of subjects who were asked to value either the purchase or sale of items possessing some social significance under various different social circumstances. It appears that reactions in these situations are again often emotionally charged and that some trade-offs are regarded as taboo. For example people do not like to value friendships in terms of improved living conditions, that is they appear to induce people to posit a social or emotional value to objects that is quite independent of the item's monetary value.

You are basically driven by certain emotional considerations and then any monetary value associated with any relationship that is of some value to you actually become secondary or maybe it's a taboo to accept it or explain it from a monetary perspective. For example, a person may be highly reluctant to sell a ring that was bequeathed to them by a parent. This phenomenon reinforces endowment effects and reduces the fungibility of assets. There are many many examples, specifically heirlooms are something which people generally do not feel like selling.

Because that carries their traditions that you tend to attach some emotions to it. So unless and until the situation is actually dire, you would not feel like selling it. So again, this is driven by emotions and not actually people do not just value something in terms of their monetary implications or financial implications. And the final concept that will be discussed under wealth account is the denomination effect. This is an interesting application of fungibility which concerns the denomination effect where the likelihood of spending is lower

when an equivalent sum of money is represented by a single large denomination. For example, one 500 rupees note relative to many smaller denominations like 10, 50 rupees notes. Actually, I have seen people behaving in this fashion specifically, you know, somewhat older people. Or maybe people those who are tingly. So they would think that once the 500-rupee note is broken, it loses its significance in terms of money being spent much more quickly compared to holding onto that 500-rupee note.

People tend not to like breaking large-denomination bills when purchasing items, as they view this as a significant decrease in their wealth. Whereas using small-denomination bills to pay does not have the same psychological effect. In this context, what also appears is

that the more we go for digital payments, all these concepts are actually becoming somewhat irrelevant. And as you can understand that from that perspective, increase in the digital payment platforms or options in terms of cashless transactions as they increase, has much, much more implications

for the kind of consumptions that might be going on in the economy or maybe in terms of overall volume of consumption or overall volume of trades that will take place. Now, when people have only one 500-rupee note and are under the denomination effect, they might not be willing to break it. To do so, they might have to forego certain temptations to buy certain things. Because if they only have that and maybe some smaller-denomination notes, but the item they want to purchase has a price higher than the total of the smaller-denomination notes they have.

So they have to break the 500-rupee note. But then they decide not to do so. In that way, they basically exercise self-control. They curtail their consumption. Now, if such barriers were not there, then consumption or expenditures on a large number of commodities, services, and goods would be expected to increase.

Further, it was reported that people prefer to receive large-denomination bills as change from a purchase as a self-control device. So, as you see, I was just talking about self-control. If I also want to exercise self-control, I would prefer to have large denomination bills because then I know that I would hesitate before breaking such a bill. It also appears that people prefer to spend used or worn notes rather than crisp new ones when they make payment that is also you might observe among people. Again in today's era we are using very little cash,

nevertheless I have experienced such people in life those who would be a little hesitant to spend new notes as compared to old notes. Even today whenever we are going for transactions I myself can also say that I would first offer the notes which are relatively worn out compared to the notes which are fresh and crisp. In this case, the lack of fungibility arises not from self-control factors but from disgust and a fear of contagion. So, it is a fear of contagion was specifically the case when you think that a worn-out note actually carry a lot of germs but in India hardly probably people think along those lines of course this is obvious to like things which are fresh clean as compared to things which are dirty and worn out

so of course you would like to leave you know or probably let go of those which are dirty and worn out and keep with yourselves the one which are fresh so as a result of which here

also we can see some kind of fungibility arising and this is a completely different kind of fungibility. We are now considering physical characteristics of bills in order to decide which one to use, how much to spend and so on. So with this we complete our discussion on wealth accounting or wealth account. Next is the income account the third component of our under budgeting.

So far we have considered violations of fungibility produced either by the budgeting process or by the location of funds. So, ideally these two refers to budgeting process, refers to the consumption category and location of funds refer to the wealth account. A third class of violations can be produced by the source of the income. Experiments showed that when subjects judge both sources and uses of funds on a serious frivolous scale, the winnings of an office football pool are considered frivolous, whereas income tax fund is serious, eating out is frivolous but paying the bills is serious, then of course, consumption patterns or expenditure patterns also vary.

Similarly, when subjects were asked to say what they would do with a particular windfall, such as \$30 found in the pocket of a jacket in the back of the closet, it was found that people have a tendency to match the seriousness of the source of some windfall with the use to which it is put. In families that receive child allowance payments from the government, it was found that spending on children's clothing is much more sensitive to changes in the designated child allowance than to other income sources. So what it says is that spending on children's clothing is found to be more sensitive to changes in the designated child allowance.

So as child allowance increases, decreases, or broadly it changes then it is observed that expenditures on child's clothing also change -- at least the change is larger as compared to change in the family's income. So in the previous example of this child allowance case the fact that child allowance was labeled as such seemed to matter in the way people spent the money Labeling effects are common. One surprising domain in which this idea can be applied is dividend payments by corporations.

Suppose a corporation is earning profits and wishes to return some of these profits to its shareholders, which can be done in two alternative ways. One method is to pay a dividend. Another method is simply to repurchase shares. If there are no taxes, these two methods are equivalent because if you receive dividends, you receive money, just as you would through share repurchases. Our funds come to you; you are not supposed to pay any taxes on them.

The two methods give you the same result. But if dividends are taxed at a higher rate than capital gains—because, as you know, in our country, say income taxes, the maximum level could be 30% or 25% maximum rate. While the long-term capital gain taxes are at 12.5%. Of course, there are slabs—I am talking about the maximum possible tax rates and not slab-specific taxes, or maybe there are deductions they are not considered.

So, considering that you have crossed those limits on a dividend, you may have to pay a tax of 30%, but on a long-term capital gain, you have to pay a tax of only 12.5%. So, tax-paying shareholders would prefer share repurchases to dividends because share repurchases are basically going back—treated as capital gains—and dividends are treated as income. So, as a result, shareholders would prefer share repurchases to dividends and those who have their shares in non-taxable accounts would be indifferent. Under these conditions, no firm should ever pay a dividend

because, as you know—or as you understand—the shareholders would actually prefer share repurchases over dividends. They would vote for share repurchases instead of dividends. Then why do firms pay dividends? This can be explained based on mental accounting. Investors like dividends because the regular cash payment provides a simple self-control rule. Spend the dividends and leave the principal alone.

So dividends are treated as extra income. In this way, the dividends act like an allowance, and which can be basically spent more freely as compared to when you receive money through share repurchases because in that case your principal amount is also returned and principal amount you may not be willing to touch you wanted to invest somewhere else you wanted to remain invested if instead from simply repurchase their own shares stockholders would not receive a designated amount to spend

And would have to dip into capital on a periodic basis. So, share repurchases would consist of capital and then basically your initial investment. So, the capital amount plus gain, and since there is no clear-cut demarcation of how much is capital and how much is the gain, people are actually not clear about how much to spend. Consequently, dividends are preferred. Although capital gains in the stock market tend to have little effect on consumption, when takeovers generate cash for the stockholders, consumption does increase or

it is observed that consumption does increase whenever takeovers generate cash for the stockholders. This is sometimes called the mailbox effect. When the check arrives in the mailbox, it tends to get spent. Gains on paper are left alone—that is, we cannot actually

spend the gains on paper, or what you alternatively call paper gains. But when it is a realized gain, then of course we spend it. So, in the context of budgeting—or specifically in the context of income accounting—it is important to understand

that the different purchases or how the money is going to be spent depends on sources of income, bonuses, and windfalls. So, next we are going to discuss: do all changes in wealth produce a similar short-term change in consumption? The mental accounting prediction for the MPC—that is, the marginal propensity to consume out of windfall gains—depends on the size of the gains. Small gains relative to income will be coded as current income and spent. If you remember, we had, you know, three or four categories. It can be broadly three categories: current income, home equity, and future income; or current income, assets, and future income.

Alternatively, behavioral theorists suggested there are four categories: current assets, current income, home equity, and future income. So, if we go by the broad three-category classification, then It would come under current income, which could be mostly the current income that is spent, which you receive on a regular basis. Larger gains will enter the asset account, where the MPC is lower. So, if you are making a substantial amount of gain, then that would basically be saved. But if the gain is very small, then that would be spent.

The source of a change in wealth can also matter. Some windfalls, such as unrealized capital gains, are naturally treated as changes in the asset account. Here we are talking about unrealized capital gains that is the gains that are on paper, so paper gains are naturally treated as changes in the asset account so for example I have invested some one lakh rupees in the stock market and when I check them now probably they have become five lakhs. So, even though they are still in my account and I have not withdrawn any money or closed the account or sold the shares,

nevertheless, I'll understand that my wealth has gone up by four lakh rupees. Initially, it was one lakh, so now it is five lakh. So, that five lakh would definitely be considered as part of my assets. Others, such as the sale of a security, could be treated as income. Studies have found that the marginal propensity to save capital gains in the stock market is close to unity, while when takeovers generate cash to the stockholders, consumption does increase. So, when you are actually making capital gains in the stock market, then the marginal propensity to save is close to unity, which means whatever gains you are making, the entire thing is saved.

But when a takeover generates cash to the stockholders, then consumption increases, which means the saving proportion is actually less, and some part is also consumed. Even cash receipts can enter the asset account if the inflow is in a large enough lump and is not considered regular income. Interesting cases to consider are bonuses and windfall gains, where a bonus is defined as a fully anticipated but lumpy payment that is paid in a lump sum. Consider two professors: John earns \$55,000 paid in monthly installments. Joan is paid a base salary of 45,000 paid over 12 months and a guaranteed extra 10,000 dollar paid during the summer months.

The standard theory predicts that the two professors will make identical saving decisions because both have equal annual income, but in one case, one is getting the amount, you know, spread over a 12-month period, and another is getting \$45,000 spread over a 12-month period, but \$10,000 is coming as a bonus. Nevertheless, since the financial implications of both situations are the same, they should be making identical saving decisions. The mental accounting formulation predicts that Joan will save more for two related reasons. First,

since her regular income is lower, she will gear her lifestyle to this level. Second, when the summer salary comes in a lump sum, it will be entered into the assets account with its lower MPC. So, as we just mentioned, a substantial or large lump sum gain is included in the asset category and not spent much. So, that would be directly saved when it comes. And at the same time,

since she has a lower income, her consumption is also adjusted accordingly to a lower level compared to John. And that is how she might be able to save. In Japan, researchers found that the MPC from regular income was 0.685. That is, when income increases by 1 yen, consumption increases by 0.685 yen. While the MPC from bonus income was only 0.437. So, if you receive a bonus of 1 yen, you spend only 0.437 yen on consumption.

At least, the MPC from bonuses is lower than the MPC from regular income. So, with this, I conclude the discussion on budgeting broadly. We discussed consumption categories, wealth accounts, and income accounts. These are the references used. Thank you.