

Propositions on Transitory Income with Relation to Consumption and Savings Propensity

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ABSTRACT

Friedman's permanent income hypothesis has laid the foundation of modern economics and theory of consumption and savings. But the increasing amount of transitory income generating over the last few decades and the dependencies of individuals on the same, have compelled the economists of the modern era to give some thought to it. Even at the policy levels, transitory income has been a big issue for deliberation where from a significant portion of GDP is generated. This paper attempts to review the researches over the years carried out on transitory income across the globe and put forward a framework for dealing with it in the light of individual's consumption and savings' propensity.

Keywords-- Permanent Income, Transitory Income, Consumption Propensity, Savings Propensity

I. INTRODUCTION

During the initial days of economic research on consumption behavior, permanent income hypothesis became the basis for theoretical debate on the same. Individual Income can be categorized into two parts: Permanent and Transitory. Formally, the income equation can be simply drawn as $Y = Y_p + Y_t$. This hypothesis argued that expenditure pattern of individuals are guided by their permanent income, and is smoothed out over the entire lifetime (Friedman, 1957). It once formed the basis for neo-classical economics and modern theory of consumption. Based on this initial path-breaking study several models such as Life cycle hypothesis (Ando & Modigliani, 1963) or credit rationing (Hayashi, 1985) emerged to explain exactly how fluctuations in income, permanent or temporary, affected the actual consumption, defined as the Marginal Propensity to consume.

As time went by, studies shifted to categories of income and types of income shocks. The traditional thought like 'riches save more' (e.g., Mayer 1966, 1972),

were questioned and different arguments and statistics were put forward to disprove the belief (Dynan et al, 2004). Researches suggest that the changes or fluctuation in Y_p is more likely to cause serious impact on the consumption function; short term as well as long term, but changes in Y_t is more likely to impact the short term horizon (Dahlberg, 2008). It is necessary to segregate the impact of the two to understand the socio-economic functioning properly.

II. LITERATURE REVIEW

The permanent income hypothesis has faced a lot of empirical criticisms. Starting with Hall (1978), reinforced by Flavin (1981) upto Morley (2005), empirical results did not seem to support the hypothesis. Studying the income fluctuations and its effects needed to have a more profound and all-embracing theory.

The impact of income fluctuation has many dimensions. To begin with, income inequality is directly proportional to crime rates. Researches have consistently shown that areas with higher income inequality experience higher crime rates (Ehrlich, 1973; Chisholm and Choe, 2005). But for the first time perhaps the income is partitioned and analyzed against rate of crime by Dahlberg and he noted that a rising inequality in Y_p significant increases property crime, whereas a similar fluctuation in Y_t does not impact crime much. Increase in the transitional income is not considered an upward movement, whereas an increase in overall Y_p does. Lack of it actually breaks down the standards and values (Merton, 1938).

Another area of interest in income fluctuation and corresponding social behavior is the Deaton's paradox (Deaton, 1987). As against the predictions of the permanent income hypothesis that if permanent income is smooth the corresponding consumption should be smooth too (Friedman, 1957), the labor market in US did not follow this law and sharp fluctuations in income did not cause sharp fluctuation in consumption. This was a

phenomenon for research. This unlikely behavior came to be known as the Deaton's paradox. Although (Nelson and Plossar, 1982) have forcefully argued that sometimes time series data are difference stationary, but no conclusive solution came into picture until the labor income with its univariate dynamic properties are broken down into permanent and transitory components (Quah, 1990).

There is another recent genre of research where permanent and transitory incomes are given the names: Comprehensive and Other Comprehensive Incomes (Black, 2015). Model parameters like self-predictability, future state predictability and value relevance were used to distinguish two types of income (Ohlson, 1999). In these researches the financial structures/records were observed and dividend pay-out methods were discussed. Research at the firm's level accommodated the role that other comprehensive incomes play in setting the dividend policy. Barring few exceptions (Goncharov et al. 2014), the OCI is given the least importance, where it should actually have been more. Detailed perspectives can be seen in the research work of Bradbury (2016).

The research on transitory income has also been extended to understand savings. On one hand, Dynan et al. (2004) conclude that there is a positive relationship between saving rates and permanent (or long-run) income. On the other hand, Davies and Burbidge (1994) conclude a strong correlation between saving and transitory income. Extensive research gives various insights but remains inconclusive because deeper insight was perhaps missing in permanent and transitory income. Adding idiosyncratic uncertainty (Allen et al. 2015) to traditional models of savings can lead to different projections. Economists' intuition: Riches save more, comes in direct confrontation to the non-economists' intuition: the poor saves more.

Again in a research conducted by Elwood (1998), the importance of segregating permanent and transitory component of income was shown. Income series contains implicit stochastic properties. Analysis at the univariate level does not provide enough information to deal with such random components (Christiano and Eichenbaum 1989, Quah 1992). The one-to-one relationship between permanent income-permanent consumption and transitory income-transitory consumption is difficult to be established. However, after segregating the two, quite interestingly it was found that permanent income and consumption was closely related but transitory consumption was not related to either permanent income or transitory income (Shirvani et al. 2008).

With this vast literature in place, it is quite evident that a separate well-defined study pertaining to transitory income and its influence on propensity to consume as well as to save is missing. It is evident that it would be incorrect to combine the two segments of income and use projection techniques to predict consumer behavior. In this paper certain propositions are put forward pertaining to the study of transitory income as a stand-

alone identity. More so because, it is evident that transitory/non-permanent income is gradually becoming a significant part of GDP. Study have shown that 4.9% of fixed wage earning individuals take part in other non-permanent income generating activities (The Boston Globe, Feb 2014). The scenario is likely to be more drastic in India. The figure would be even higher if the unaccounted source of income is also considered. There would be a time when a significant part of the population would have more of transitory than permanent income. Hence, it is imperative that we examine its properties more closely.

III. THE FUNCTIONAL CONSTRUCT

Referring back to the Friedman's Model of Permanent Income, he first divides the total income into the permanent and transitory components: $Y = Y_p + Y_t$. In the current paper we propose to divide the transitory component further into Anticipated Transitory Income Y_t^A and the Unanticipated Transitory Income Y_t^U . Anticipated transitory incomes are those which an individual earns between his permanent incomes over a significantly long period of time, which he well anticipates in advance i.e. at least in the time period $t-1$, where the income is generated in time period t .

Based on this categorization, empirical results suggested that the consumption and savings behavior against the two types of incomes showed different patterns and needs to be analyzed separately. Three propositions are hereafter extended.

3.1 Proposition1: The first Proposition deals only with the anticipated component of the transitory income. The Propensity to consume, the ratio between the amount of Y_t consumed and total Y_t , decreases over time in case of the anticipated transitional income, whereas it remains high for the individuals earning unanticipated transitory income.

When a transitory income becomes regular in nature, the earner tends to get used to it, he tends to anticipate the income well in advance similar to the kind of anticipation he has for the permanent income. Hence, the enthusiasm to consume more than normal subsides.

The Empirical Validation

During a pilot survey involving a sample size of 55 salaried individuals earning transitory income, two sets of respondents were identified – one, who could easily anticipate the income in the future time periods barring minor fluctuations, the other who recollected that they did not anticipate the income in earlier time periods; where they suddenly got the opportunity to earn and they grabbed it. Any income generated over and above the fixed salary component, for two or more consecutive periods qualifies to be Y_t^A .

The respondents in this category were asked to state the proportion of the transitory income they recollect having consumed and also the time since when such

income was earned. The following graph gives the survey result.

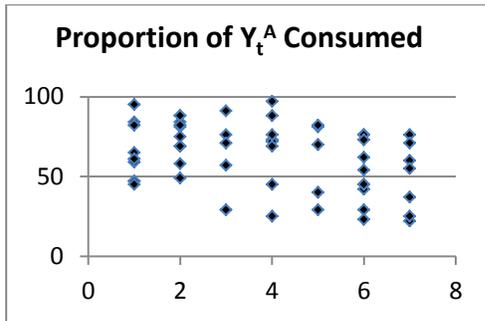


Figure 1: Empirical result of Proposition 1

On the x axis we define the number of time periods over which the anticipated transitory income was generated and on the Y axis we define the proportion of that income used for consumption. We can visualize a downward trend though not very significant. The relation however, can be put into reference and the proposition can be said to hold. The reason for the observable fluctuation can be explained as follows.

As per Friedman’s consumption function, the proportion of consumption with respect to the permanent income is a function of the prevailing interest rate (i) that accounts for his retirement savings, the income generated from fixed or liquid assets (w) and a portmanteau variable (u) explaining income for consumption versus addiction to wealth.

$$\frac{C_p}{Y_p} = \Delta(i, w, u) \tag{1}$$

When the transitory income is considered, there are some obvious differences. One, the income from the non-human wealth (w), is naturally a part of anticipated transitory income hence, need not be explicitly defined. Two, the prevailing interest rate of lending to organized agencies like the bank can become an important variable affecting consumption, but since we are defining the relationship over several time periods, we have to compulsively assume the rate to remain fixed over time. That is why the influence (i) can be considered as a constant. In the present proposition, the proportion: $\frac{C_t}{Y_t^A}$ can also be thought of as a function of ψ , representing the number of consecutive time periods over which the transitory income is getting generated plus the error component.

$$\frac{C_t}{Y_t^A} = \phi(\psi, u) + \epsilon \tag{2}$$

The error component ϵ defines the deviations in the empirical data which can be because of the following reasons: (i) Age, Income level, and other demographic and socio-economic variables are omitted, (ii) Income is mostly at the individual level whereas the consumption is at the household level, and (iii) It becomes difficult for the

respondent to confidently tell that what portion of the consumption was from the Y_t^A and what portion was from the Y_t^U .

3.2 Proposition 2: The second proposition deals with the second component of the Transitory Income: Y_t^U . It states that Consumption from the Unanticipated Transitional Income Y_t^U at time period τ , depends directly on the Initial Savings level in time period $\tau - 1$.

$$\frac{C_t}{Y_{t\tau}^U} = \phi_1(\hat{S}_{\tau-1}) \tag{3}$$

This proposition can be explained through three cases:

Case 1: Individuals with very high initial savings level will have a higher propensity to consume the unanticipated transitory income and in general the savings will fall. In other words, the individual will not have the urge to save more because his future needs are secured. Any additional income will be by and large consumed. Another factor that might have an influence here is the level of permanent income Y_p . If Y_p is substantially high too, then the additional transitory income will go unnoticed and can be thought of as an individual’s addiction to wealth, the variable (u) in Eq. 1.

Case 2: An individual who is just managing to save a little, would not be keen to consume a lot from the additional income. The need for precautionary savings will increase his propensity to save and hence decrease his propensity to consume.

Case 3: With negative savings, the entire transitory income would go as consumption. The propensity to consume would be almost 100% whereas the propensity to save will be 0. Let us consider a linear consumption function with the Income component broken down into the three predefined components:

$$C_{\tau}^{p+\tau} = \beta_0 + \beta_1(Y_{p\tau} + Y_{t\tau}^A + Y_{t\tau}^U) \tag{4}$$

β_0 represents the minimum consumption required for subsistence. If $Y_{p\tau-1} + Y_{t\tau-1}^A < \beta_0$, then $Y_{t\tau}^U$ will not generate any savings. The entire amount earned will go to fill up the negative savings generated in the previous time period.

The above three cases generates bath-tub like function which is now extended for empirical validation.

The Empirical Validation

The pilot survey that was carried out, also asked for the initial savings level of the respondent on a scale of -100 to +100. Barring 13 out of 55 respondents, all others had anticipated and unanticipated components in their income. The next question was same as the last exercise that is to approximately tell the proportion of the income to have been consumed in the last instance. This data was not continuous in time. Since, the respondent would not earn the unanticipated transitory income over successive periods. So, the characteristic feature of such an income was that it was generated at discrete and unequal intervals of time.

However, let us now look at the scatter plot of the collected data.

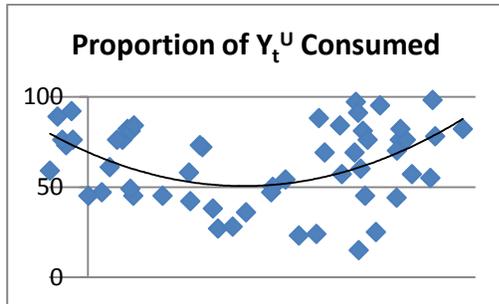


Figure 2: Empirical result of Proposition 2

It gives a well-defined U-shaped curve. The regression coefficients are presented by excel which fits trend line for you based on your choice of the function. The quadratic function seemed to fit the data set best, the equation for which is:

$$\widehat{C_t/Y_{tt}^U} = 1E-08\hat{S}_{t-1}^2 - 0.0009\hat{S}_{t-1} + 69.315 \quad (5)$$

The function (3) is subtracted from the LHS of (5) to arrive at the error component ϵ_1 .

$$\phi_1(\hat{S}_{t-1}) - \widehat{C_t/Y_{tt}^U} = \epsilon_1 \quad (6)$$

3.3 Proposition 3: This proposition incorporates the third factor: time. The consumption of savings' propensity not only is dependent on the initial savings of the individual but also on the time at which the unanticipated transitory income is generated. A huge part of the wage earning population generates a constant income once every 'n; number of days, 'n' remaining constant throughout. In most cases, this income generation takes place after a month for salaried individuals, seven to ten days for some segment of industrial wage earners or contractual laborers and it even goes up to six months for community workers in rural parts of the country. If the duration is shorter (hourly or daily), the term of employment may be more flexible but unstable, whereas a monthly contract (a monthly wage system), is apparently more stable (Fatima, 2015).

The proposition states that eliminating the effects of other factors, the transitory income generated at the beginning of the period 'n' tends to generate larger saving than if it is generated towards the end of the period 'n'. This proposition requires a separate and detailed study which shall be kept as a future scope of work. But the logic remains that, most people are enthusiastic towards income which offers a benchmark for perceived power. If the transitory component of the income is generated at a time in close proximity to the permanent component, the consumption propensity would not have got the time to go up by then.

IV. CONCLUSION

The paper outlines and empirically validates three propositions with respect to the propensities to consume and save transitory component of the income. The transitory income is broken down into two categories: the anticipated transitory income and the unanticipated transitory income. The first proposition states that the propensity to consume the anticipated transitory income reduces over time in comparison to the other component. The second proposition claims that the propensity to consume the unanticipated transitory income is directly dependent on the Initial savings level of the individual. And the third proposition states that the propensity also depends on the time at which the income is generated in between two permanent income period.

The research on transitory income needs more elaboration now than before because of the changing preference of the people to get involved in transitory income more than permanent. The tax system, the distribution of wealth at the macro level, as well as the promotional policies and competition policies at the micro level, needs to be readdressed and reformulated if such a behavioral transition takes place. This paper on one hand extends the previous researches on both the components of income and on the other hand provides the basis for studying the transitory component explicitly. But there remain several areas where further study – empirically and theoretically, must be carried out to gain some more insight on the concerned area.

First of all, it is quite obvious that the third proposition needs to be empirically validated and the special factors of all three propositions must be accommodated. Secondly, considerable research must be made to decompose the total consumption function into its permanent and transitory components. The consumer is most often not quite aware of from which component of the income he is actually consuming. When the income and expenditure gets mixed up, decomposing them based on the consumption style and pattern becomes necessary for accurate results. These future areas and many others pertaining to the said area if explored properly, we can model the consumption and savings pattern along with its rationality and irrationality, at the highest causal level.

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