Modeling Keynesian Consumption Function for Community Financial Education

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Abstract

Modeling Keynesian Consumption Function for Community Financial Education demonstrates basic teaching to caseworkers to develop their financial education skills to become better financial mentors to the communities they serve.

Keywords: caseworkers, community, consumption-function, financial education, welfare.

Although government spending on public assistance is widely discussed in social science literature, not much has been discussed demonstrating the importance of essential basic economics and finance education in helping families maximize public assistance (Campbell, & Gaddis, 2017). When families in a community are in financial crisis there is a definite need for government intervention (Ramey, & Zubairy, 2018). In Baltimore, Maryland, just like many urban cities in the US, transfer payment in public assistance helps put food on the table and provides shelter to thousands of families considered to be below the poverty line (Rothstein, J., & Valletta, R. G. 2017). Proponents against public assistance may argue that public assistance is a disincentive to productivity, a discouragement to re-employment, and an eventual raison d'être for recipients and their communities to be worse-off due to the zero multiplier effect of such a government spending (Rozema, & Ziebarth, 2017; Yang, 2017; Brewer, & Shaw, 2018). Reflecting on a government bailout, when the national economy is in crisis, Keynesian economics substantiates such a bailout would have a multiplier effect (Keynes, 1937; Ando, & Modigliani, 1963). This paper assumes that those on public assistance are predominantly in financial crisis and as such, public assistance is a bailout directly to the recipients and indirectly to their communities (Hashemzadeh, & Farhat, 2017). If such is the case, public assistance could have a probable multiplier effect in those communities. Modeling Keynesian Consumption Function for Community Financial Education teaches basic, but essential financial education skills, they would become knowledgeable and comfortable in providing financial mentoring to recipients of public assistance (Hicks, 2018). In this way, the DSS bailout would be a double-edged sword with finances and basic financial education skills available to recipients. The objective is to help teach financial education skills to DSS caseworkers to enable them to help recipients of public assistance maximize their transfer payments. This study recognizes economics as the foundation of financial decision-making in an economy and as such, modeling Keynesian Consumption Function for a community financial education was the appropriate approach due to its versatility in economics and personal finance education (Johnson, 2017).

Keynesian Economics Model

In the Keynesian Economics model, spending is the driving force of the economy. Assuming everything is equal, spending can only be done when income is available. In other words, there must be a supply of income in the economy and the total is what Keynes calls Aggregate Income (Keynes, 1937). Aggregate Income (commonly represented in economics as, Y) should be equal to the Aggregate Demand for Income (note that people demand income basically for spending, and therefore, Aggregate Demand is also Aggregate Spending).

Aggregate Spending includes Consumption spending by households or individuals and families (C), Investment spending by businesses (I), Government Spending (G), and Net Exports

or Exports minus Imports (Xn). In a nutshell, Y represents the Total Supply of Income or Aggregate Income, and C+I+G+Xn represents Total Spending or Aggregate Spending in an economy (Keynes, 1937). This leads to the Keynesian economics model: Y= C + I + G +Xn. The model indicates a linear relationship between Aggregate Income (Y) and Aggregate Spending (C + I + G +Xn). Therefore when the economy is in a recession, and the government decides to intervene by increasing Aggregate Income (Y), this increase in Y, would cause Aggregate Spending to multiply and help the economy rebound from crisis. However, the focus of this study is on communities in financial crisis with individuals depending on public assistance. These individuals do not own a business to generate business spending (No "I"), they are not in control of the government to print money and generate spending (No "G"), and they do not conduct export and import transactions (No "Xn"). All that they do is consume (only "C") depending on their disposable income (Deaton, 2012). So, by narrowing the general model,

Y= C+I+G+Xn to focus on Consumption Spending (C), the model becomes the Consumption Function,

$C = \underline{C} + mpc\ (Yd)$ where,
  i.   C = Consumption Spending
  ii. $\underline{C}$ = Spontaneous consumption spending (people in the US consume even at zero income)
  iii. mpc = Marginal Propensity to Consume, induce consumption spending or that proportion of additional income that is consumed or saved. It determines the multiplier effect.
  iv. Yd = Disposable Income: Income (Y) minus tax (Tx) plus transfer payments (Tr) .e.g public assistance
       Or
       $Yd = Y – Tx + Tr$

In a nutshell, for families in public assistance their disposable income equals transfer payment (Yd = Tr) and the Consumption Function: $C = \underline{C} + mpc\ (Tr)$. Public assistance recipient can still maximize their income (Tr), they can decide how much to consume or save, and obviously, any little savings can result in a multiplier effect.

Methodology
        225 DSS caseworkers attended a financial education program. 80 percent were social workers by profession (BSW and MSW) and the rest were graduates with related social science degrees. All participants had little or no prior knowledge about theories on income, consumption, and investment.
        The program was five days, three hours per day, and the topics were based on days (Day one: Discussions on Keynes and Keynesian Economics; Income and Consumption. Day two: Basic Principles of economics Scarcity, Choice, and Opportunity Cost. Day three: the relationship between income, consumer spending, and saving. Day four: Transfer payment to public assistance, and budget to save. Day-five: Understanding the relationship between income, consumer spending, and saving; marginal propensity to consume, marginal propensity to save, and the multiplier effect; and using acquired skills to become financial education mentors to

recipients of public assistance). Caseworkers have case records to manage and as such, it is normal that not all of the participants would be present on all five days of the program. Participants were all encouraged to show up on all class days, especially the last day, Day-five of the program for a recap and evaluation of the program.

Results

The table below shows the outcome of the number of caseworkers, the number of days of classes attended, and the average financial education skills scores.

Caseworkers	# Class Days Attended (CDA)	Financial Education Skills (FES)
16	1	41
24	2	59
10	3	68
41	4	82
134	5	91

The correlation between number of class days attended and financial education skills (FES) can be derived from the sample covariance formula:

$$Cov(\text{CDA, FES}) = \frac{\sum(\text{CDA} - \overline{\text{CDA}})(\text{FES} - \overline{\text{FES}})}{N - 1}$$

  i. $\sum$CDA =15 $\sum$FES = 341
  ii. $\overline{\text{CDA}}$ =15/5 =3
  iii. $\overline{\text{FES}}$ = 341/5=68
  iv. N = 5
  v. $\sum$ (CDA - $\overline{\text{CDA}}$) (FES - $\overline{\text{FES}}$) =127
  vi. $\sum$ (CDA - $\overline{\text{CDA}}$)^2 = 10
  vii. $\sum$ (FES - $\overline{\text{FES}}$)^2 = 1647

$$\textbf{Cov (CDA, FES)} = \frac{\sum (\text{CDA} - \overline{\text{CDA}}) (\text{FES} - \overline{\text{FES}})}{N - 1} = \frac{127}{4}$$
$$= 32$$

Based on the above result from the sample covariance of both variables, the number of Class Days Attended (CDA) and Financial Education Skills (FES) have positive covariance. It is obvious that as caseworkers' CDA increases their FES also increases. However, this is not enough to determine the strength of this relationship between caseworkers' CDA and FES or the correlation coefficient.

Computing the Correlation Coefficient:

$$\Gamma = \frac{Cov_{CDA,\ FES}}{S_{CDA}S_{FES}}$$

i. $$SCDA = \sqrt{\frac{\sum(CDA - \overline{CDA})^2}{N-1}} = \sqrt{\frac{10}{4}} = \sqrt{2.50}$$
$$= 1.58$$

ii. $$SFES = \sqrt{\frac{\sum(FES - \overline{FES})^2}{N-1}} = \sqrt{\frac{1647}{4}}$$
$$= \sqrt{411.75} = 20.29$$

$$\Gamma = \frac{Cov_{CDA,\ FES}}{S_{CDA}S_{FES}} = \frac{32}{1.58 \times 20.29} = \frac{32}{32.06} = 0.998$$

Conclusion

Modeling Keynesian Consumption Function for Community Financial Education helps build financial skills essential for caseworker mentoring of communities on public assistance. There is a very strong, perfect relationship between caseworker CDA and FES (0.998). Conclusively, attending classes in basic economics and financial education using an appropriate economics model like the Consumption Function would likely help caseworkers acquire knowledge and skills. This acquired knowledge and skills would enable them to become essential financial mentors to communities in need of financial assistance, especially recipients of public assistance. The expectation is that if caseworkers are empowered with economics and financial knowledge, they would develop confidence in helping welfare recipients in understanding and in managing their finances from transfer payments.

Implications

A major implication of this study is enforcing the notion of transfer payment as income to individuals on public assistance. From the understanding of marginal propensity to consume, marginal propensity to save, and the multiplier effect that could mitigate the financial crisis in communities; caseworkers are committed to mentoring public assistance recipients. It is not just any teaching that motivates people to spend wisely or save. Such teaching would require mentoring with confidence and tenacity from the mentor. The foundation of spending and saving are embedded in economics and as such, teaching based on essential economics models simplifies the understanding for a reason to minimize consumption, save, and invest at all income levels. Another essential implication is that the consumption function instructs us that everybody with any amount of income can minimize consumption spending and accrue saving. Incidentally, it seems obvious that most people with income and better consumption decisions can have savings. Such people are happier than those without savings (Ando, & Modigliani, 1963).

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