Estimating the Short - Run and Long - Run Consumption Function Using the Absolute Income Hypothesis (A . I . H .)

AMER E. MEGRI, ALI RAHUMA, ABDULSALAM HEWETA[1]

ABSTRACT

Annual data of nominal consumption expenditure and nominal total disposable income for the years 1962 - 1985 were used in this study to estimate the relationship between consumption and income for the Libyan household.

The results of this empirical study confirmed the theoretical findings of the subject matter.

The value of the marginal propensity to consume (MPC) in the short - run was approximately 0.27 while its value in the long - run was 0.30.

INTRODUCTION

The income consumption function was first introduced by Keynes in 1936 in his book entitled «The Great Theory Of Employment, Interest, and Money». He showed two important points:

1 - The existence of a positive relationship between income and consumption.

2 - The change in consumption is less than the change in income.

The results of estimated consumption functions in the USA using time series data (annually, or quarterly data) showed a value for the marginal propensity to consume (MPC) of approixmately 0.7 and a positive constant term (3).

This empirical study was conducted to estimate a short - run and long - run consumption function, to see if the Libyan household decisions of consumption expenditures confirm the results of the absolute income hypothesis (AIH).

MATERIALS AND METHODS

Annual data for 1962 - 1980 were used in this study. These included household consumption expenditures, and disposable income (1,2,5).

These data were collected from the statistics published by the General Department of Social and Economic Planning. Ordinary Least Square (OLS) was used as econometric tool to estimate the consumption function based on 1962-1980 data.

(1) Department of Agricultural Economics, Faculty of Agriculture, University of Al-Fateh, Tripoli, Libya, S.P.L.A.J.

The theoretical model used, expressed in general from, is as follows:

$$C = Co + by \qquad \dots\dots\dots\dots(1)$$

$$C = gY \qquad \dots\dots\dots\dots(2)$$

Equation 1 is a short run consmption function, and equation 2 is a long run consumption function, the variables and parameters are defined as follows:

> C = consumption expenditure measured in millions of Libyan dinnars (L.D.).
>
> Y = Total disposable income measured in millions of Libyan Dinars (L.D.).
>
> Co = planned consumption.
>
> b and g = Marginal propensity to Consume (MPC).

The given consumption functions are subjected to the following restrictions (4):

> 1. $Co > O$, planned consumption is expected to be positive at the zero income level.
>
> 2. $O < \dfrac{dc}{dy} < I$, the marginal propensity to consume lies between zero and one.
>
> 3. $g > b$, the long - run marginal propensity to consume is greater than the short - term marginal propensity to consume.
>
> 4. $\dfrac{d^2c}{dY^2} = O$, MPC is constant at different levels of income.

RESULTS AND DISCUSSION

The results of estimating short-run and long-run consumption functions are reported in Tabel 1.

Table 1 – Estimated Consumption Functions

EQUATION	INDEP - VAR	DEP - VARS COEFFICIENTS		R^2
		C_o	Y	
SHORT-RUN	C CONSUMPTION	111.7 (3.97)*	0.27 (35.73)*	**0.98**
LONG-RUN	C CONSUMPTION	–	0.30 (39.46)*	**0.98**

(*) The number in parenthesis below each coefficient is the T-ratio.

The estimated short-run consumption function indicates that the independent variable (total disposable income) has the correct sign and significant at 0.5 percent level. The estimated long-run consumption function shows that the coefficient of the total disposable income has the right sign and significant at 0.5 percent level.

Therefore, the short-run consumption function could be written as follows:

$$C = 111.71 + 0.27 \quad Y \ldots 3$$

The marginal propensity to consume (MPC) equals 0.27 which means that the Libyan households on average spend 0.27 of each dinar earned on consumption and save 0.73 dinars. The planned consumption at zero income level is approximately 111.71 million L.D. a year. The average propensity to consume (APC) at any income level can be found by dividing equation (3) by Y. which gives $\dfrac{C}{Y} = \dfrac{111.71}{Y} + 0.27 \ldots 4.$

The saving function could be derived by subtracting C from Y which gives:

$$S = -111.71 + 0.73 \, Y \ldots 5.$$

The saving equation implies that the planned dissaving is equal to -111.71. It is the counterpart of the planned consumption at zero income level. The marginal propensity to save (MPS) equals to 0.73. The average propensity to save could be derived from equation 5 which gives $\dfrac{S}{Y} = \dfrac{-111.71}{Y} + 0.73 \ldots 6$

The long - run consumption function could be written as follows:

$$C = 0.30 \, Y \ldots 7$$

The marginal propensity to consume in the long-run equals to 0.30 The Libyan households in the long-run spend on the average 0.30 of each L.D earned, and save 0.70 dinnar. The average propensity to consume in the long-run is written as follows:

$$\frac{C}{Y} = 0.30 \ldots 8$$

and the saving function and average propensity to save in the long-run are written

as follows: $S = 0.70 \, Y \ldots 9$

$$\frac{S}{Y} = 0.70 \ldots 10$$

LITERATURE CITED

1. Bureau of Economical and Technical Plannig. The Secretariat of General Popular Committee for Planning, S.P.L.A.J. The National Accountings. Various issues (1964-1985) In Arabic.

2. Bureau of Economical and Technical Planning. The Secretariat of General Popular Committee for Planning. S.P.L.A.J. The Social and Economical Indicators (1970-1986). Issued 1987. In Arabic.

3.   Lawrence, H.M. 1980. Macroeconomics: A model building approach - South - Western Publishing Co. Ohio, U.S.A.

4.   Burrows, P., and T.Hitiris. 1977. Macroeconomic Theory: A mathematical introduction. John Wiley & Sons Ltd. New York, U.S.A.

5.   Ministry of Planning. LAR. Study of the status of the local economy in the Libyan Arab Republic (1964-1971). Issued 1972. In Arabic.

تقدير دالة الإنفاق الاستهلاكي بالمدى القصير والمدى الطويل باستخدام نظرية الدخل المطلق

د/ عامر الفيتوري المقرى، د/ علي رحومة، د/ عبد السلام حويته[1]

المستخلص

تهدف هذه الدراسة التطبيقية إلى تقدير دالة الإنفاق الاستهلاكي بالمدى القصير والمدى الطويل باستخدام نظرية الدخل المطلق، وفي سبيل ذلك تم تجميع بيانات سنوية عن الإنفاق الاستهلاكي الإجمالي وإجمالي الدخل المتاح للعائلات الليبية خلال الفترة (1962 ـ 1985) من منشورات أمانة اللجنة الشعبية العامة للتخطيط. وقد تم استخدام طريقة المربعات الصغرى (OlS) كأداة قياسية لتقدير الدالة المطلوبة بناء على الإحصائيات المتوفرة خلال فترة الدراسة، وقد أوضحت نتائج هذه الدراسة بأن قيمة الميل الحدي للاستهلاك في المدى القصير تساوي 0.27، بينما في المدى الطويل تساوي 0.30. وهذه النتائج تتطابق مع متطلبات النموذج النظري والدراسات الميدانية التي أجريت بالمجتمعات الأخرى.

---

(1)   قسم الاقتصاد الزراعي، كلية الزراعة، جامعة الفاتح، طرابلس، ليبيا.