CHAPTER II

LITERATURE REVIEW

In this chapter, we hope to relate theories and other concepts done by economists like Ernst Engel and Milton Friedman to our study. Besides that, this chapter also analyses the various definitions for concepts like household and income.

DEFINITION OF A HOUSEHOLD

A family may be a household but not all households are families. Households can be nuclear households or extended households. A nuclear household is comprised of a man, his wife and unmarried children. An extended household would include the man, his wife, unmarried children and married children with their young family. Sometimes the extended household would also consists of married siblings staying together.

According to Pyatt and Round, (1970)[1] the household is a unit which acts as a collective spending unit making essentially common provision for such basic items as food and shelter. More generally, within the household the principle : 'to each according to their needs' may have proximate validity so that living standards of individual may be assumed to be roughly equal (Pyatt and Round, 1970). The household is also the ultimate recipient of income and the smallest organisation exercising choice in the use.

INCOME

A. Definition

Income in the context of this study need not only be 'money income'. The income of a person can be in the form of cash or in kind. There is no correct definition of income for all purposes. A choice has to be made, according to the purpose in hand and the availability of data between a number of alternative definitions.

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[1] Pyatt, G and J Round, Improving the Macroeconomic Data Base, A Sam for Malaysia 1970, World Bank Staff Working Paper No. 646, World Bank Publications, Washington D.C., pp. 55-56.

The most simple definition of income is, income of household is the sum of consumption and net savings. In this study income consists of wage income of household head, income from other household members, income from part time job, income in kind and also transfer income.

B. Permanent Income Theory

On a theoretical level, income is generally defined as the amount a consumer unit could consume while maintaining its wealth intact.

Consumption is used to designate the value of services that is planned to be consumed during the period in question, which, under conditions of certainty, would also equal the value of the services actually consumed.

The consumption function is as below:

$$Cp_1 = f(Yp_1 / i, i) = g(Yp_1, i) = g(iW_1, i),$$

Since $Yp_1 = iW_1$, permanent income and permanent consumption is designated by Yp and Cp respectively, with an additional numerical subscript to denote the year in question. Meanwhile W denotes wealth and i denotes interest rate.

Let Y represent a consumer unit's measured income for some time period, say a year. This income is treated as two components : a permanent component (Yp), and a transitory component (Yt) or

$$Y = Yp + Yt$$

The permanent components is to be interpreted as reflecting the effect of those factors that the unit regards as determining its capital value or wealth : the nonhuman wealth it owns; the personal attributes of the earners in the unit, such as their training, ability, personality; the attributes of the economic activity of the earners, such as the occupation followed, the location of the economic activity and so on.[2]

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[2] Friedman, Milton, A Theory of the Consumption Function, Princeton University Press, 1957, pp. 22-25.

The transitory component is reflected by all other factors, factors that are likely to be treated by the unit affected as 'accidental' or 'chance' occurances, though they may, from another point of view, be predictable effect of specifiable forces, for example, cyclical fluctuations in economic activity[3]. In our study, for instance, an oil palm disease or seasonal variation.

The mean measured income of a group would equal the mean permanent income of the group and the mean transitory would be zero because, usually, transitory component tends to average out.[4] But not all factors giving rise to transitory components need be of this kind. Some may be largely common to the members of group, for example, unusually good or bad weather. If these factors are favourable for any period, the mean transitory component is positive, if they are unfavourable, it is negative.

According to Friedman, savings are a residual. Therefore any transitory changes in income lead primarily to additions to assets or to the use of previously accumulated balances rather than to corresponding changes in consumption. Anyway, according to Friend and Kravis[5] low permanent income family, particularly under uncertainty are not so likely to defer present for future consumption as better off family because of minimum needs currently. Furthermore, Friend and Kravis, points out that for low permanent income people any positive transitory income would be spent since present problems are compelling and the future uncertain.[6] This is true for residents of Tuan Mee and Caledonian Division.

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[3] Op cit, A Theory of the Consumption Function, p. 22

[4] Ibid., p. 28

[5] Friend & Kravis, "Consumption Pattern and Permanent Income", American Economic Review XLIV(May 1957) pp. 535-555

[6] Ibid., pp. 535-555.

Negative savings at low measured income reflect precisely the fact that measured income is not a valid index of wealth. Many people have low income in one year because of transitory factors and can be expected to have higher income in other years. Their negative savings are financed by large positive savings in years when incomes are abnormally large.

C. Income Inequality And The Life Cycle

In the analysis of the size distribution of income, the relation of age of household head to income or to the life cycle of earnings has achieved considerable prominence. Paglin (1975) defined equality in income distribution as consisting of equal incomes for all families at the same stage of their life cycle.[7] In his view, normative equality is consistent with different incomes for households with heads in different age classes. Such age related income differences are held to be "functional" since they arise from differences in productivity due to differences in length of work experiences, and to the life cycle pattern of investment and returns to that investment in human capital.

The age-income profile for household income generally takes the form of an inverted U, and is similar to the life-cycle pattern of earnings for the individuals. Initially low, they increase with experiences, peak income is reached rather quickly and then fall on retirement. Household income is more peaked than the individual income because of wives and adolescents moving into outside employment as the family matures, and then retiring or moving out in the final year of the cycle.

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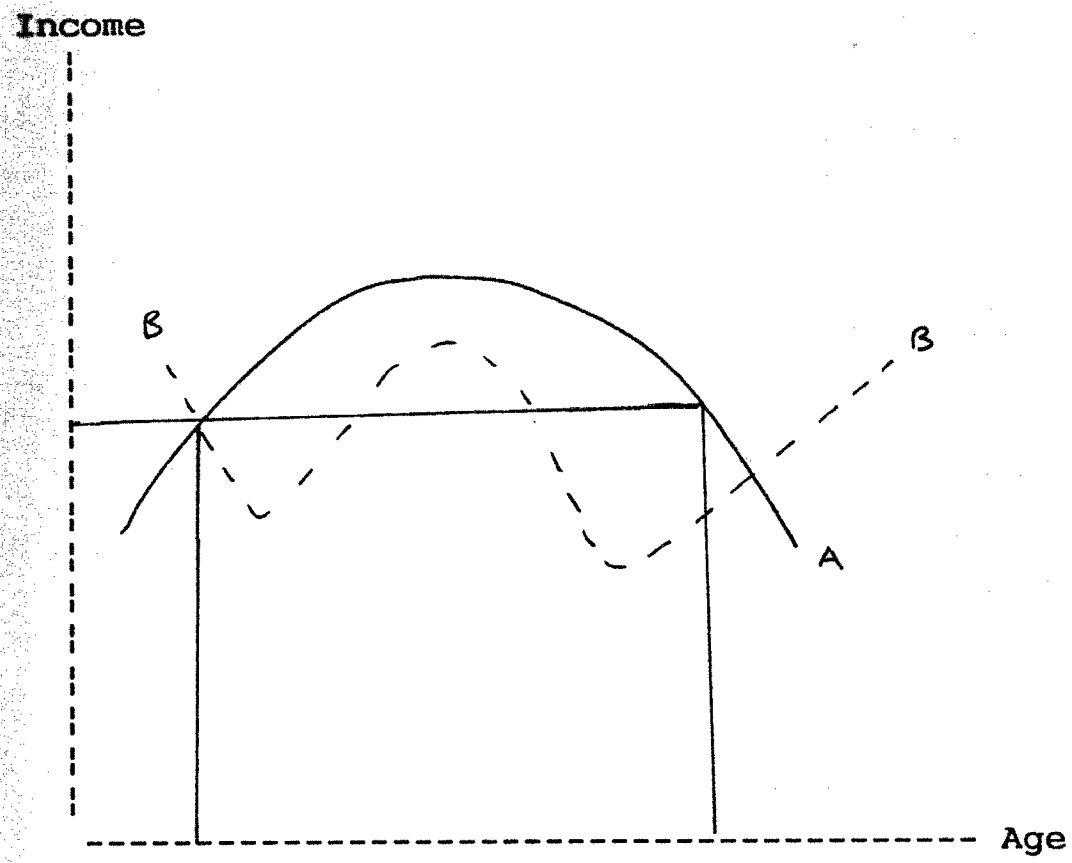
[7] Paglin, M, "The Measurement and Trend of Inequality, A Basic Revision", American Economic Review, Vol LXV, NO. 4, 1975, p. 598.

FIGURE 2.1

HYPHOTHETICAL LIFE CYCLE INCOME FOR HOUSEHOLD

INCOME AND HOUSEHOLD PER CAPITA INCOME



Source : Datta and Meerman, Household Income, or Household Income Per Capita in Welfare Comparisons, World Bank Staff Working Paper No. 378, March 1980, pp. 12-16.

`A´ slopes up because the individual is expected to get pay increases because of increased skill and tenure or seniority. It will reach a peak and then decline because investment return declines as capital is drawn down. Income also declines because pensions and social security are less than full salary.

As shown in Figure 2.1, when we move to household per capita income, the inverted U takes a more complicated form. The profile for household per capita income depends to a greater degree on the life-cycle in household size. We can speculate that households with very young heads are single individuals or childless couples in the labour force. These units would tend to have high per capita incomes, even though individual earnings are low. Subsequently, although the income of the head of household grows, the departure of women from the labour force in their child-bearing years together with a growth in the number of non-earning dependents leads to a decline in per capita incomes. As family size stabilizes, the incomes continue to grow perhaps, due in part to labour force entrance of secondary earner(s). This decline is reversed and per capita incomes peak. Finally the effect of age on income and declining household size leads to a substantial decline in incomes (due to, retirement) and per capita income follows suit, although with a rise in the highest age categories.

As a consequence of the life-cycle, in Malaysia at least, mean households per capita income of households whose heads are under their mid-thirties is above average.[8] After the mid-thirties, however, the age-income profiles for the two distributions are similar : they both rise, then peak in the later forties and finally fall.[9] But the peak is considerably higher for household income than for household per capita income.

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8 Datta and Meerman, Household Income or Household Income Per Capita in Welfare Comparisons, World Bank Staff Working Paper No. 378, March 1980, pp. 12-16.

9 Ibid., p. 12-16.

This is clearly seen in our study, small household with young household head who is newly married or has only a young family do have high per capita income. Meanwhile households with grown children who are still dependent on their parents have a smaller income per capita. As household heads' ages increases the income and income per capita decreases. There are two households in our study who has household head above fifty five years old with a relatively high income per capita because there are less household members and they obtain transfer income. This can be seen in Figure 2.1 as the age increases there is a rise at the higher age category.

D. Income Elasticity

Income elasticity shows the relation between income and the demand for certain commodity. It may also be shown that the elasticity of the 'i'th commodity with respect to income is the product of its elasticity with respect to total expenditure and the elasticity of total expenditure with respect to income.[10]

Thus denoting E as elasticity, Y as income, xi as expenditure on the 'i'th commodity, and x as total expenditure, it will appear that the income elasticity of the ith commodity is

$$Eiy = \frac{dXi}{dYi} \cdot \frac{Y}{Xi}$$

$$= \frac{dXi}{dX} \cdot \frac{X}{Xi} \cdot \frac{dX}{dY} \cdot \frac{Y}{X}$$

$$= Eix \; Exy$$

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10. Ismail, Halim, A Study of Total Expenditure Elasticities for West Malaysia, Kinabalu Publications, 1971, p 3.

In rural sector, rural households with a one percent more income than the average rural household tend to spend 0.3 percent more on food, 0.6 percent more on beverage and tobacco, 1.2 percent more on clothing and footwear, 1.6 percent more on furniture, furnishings and household equipments, 0.7 percent more medical care and health expenses, 1.5 percent more on entertainment, education and cultural services and 1.6 percent more on miscellaneous goods and services.[11]

From the average household, food, beverages and tobacco and medical care and health expenses are considered as necessities since income elasticities for these are all less than unity. This indicates that the demand for these category is inelastic with respect to income.

Aside from household income, the size of the household is considered to have a important effect on household expenditure. Refer to Table 2.1.

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11. Kwok Kwan Kit, An Analysis of Household Demand in Peninsular Malaysia, Research Paper No. 15, Statistic Department, Kuala Lumpur, September 1979.

TABLE 2.1

INCOME AND HOUSEHOLD SIZE ELASTICITIES

PENINSULAR MALAYSIA, 1973

Expenditure Groups	Income Elasticity	Household Size Elasticity
Food	0.40815	0.67595
Beverages and Tobacco	0.53492	0.19142
Clothing and Footwear	1.16279	-0.13186
Gross Rent, Fuel and Power	0.96343	-0.15712
Furniture, Furnishings and Household Equipment and Operation	1.51169	-0.22535
Medical Care and Health Expenses	0.73691	-0.02443
Transport and Communication	1.96369	-0.48505
Recreation, Entertainment, Education and Cultural Services	1.52537	-0.27386
Miscellaneous Goods and Services		

Source: Kwok Kwan Kit, An Analysis of Household Demand in Peninsular Malaysia. Research Paper No. 15, Statistic Department, Kuala Lumpur, September 1979.

On the whole, apart from food (0.68) and transport and communication (0.49), household size elasticities are small ranging from 0.1 to 03. Another notable feature is that most of them are negative. However, the household size elasticities are positive for food and beverages and tobacco. In particular, we note that, with the exception of medical care and health expenses and gross rent, fuel and power, the expenditure groups which can be considered as luxuries have negative household size elasticities. In other words, ceteris paribus households which are larger by 1 percent in size tend to spend 0.1 to 0.3 percent less on luxuries than the average household. The tendency for luxuries to have negative household size elasticities may reflect the fact that a larger number of members in a household reduces the per capita income of the household and that the household after spending more on necessities, such as food, cannot but spend less on other commodities.

This is also what we expect to find in our study.

ENGEL'S LAW

An Engel function describes the relationship between household consumption of a particular group of commodities and household income. In 1857 Ernst Engel (1821 - 1896) published a study, based on his examination of about 200 family budgets of Belgian labourers, in which he stated among other things that the proportion of income spent on food declines as income rises. His work ushered the way to the empirical investigation of the functional relationship between income and the consumption of not only food but also the whole range of household goods, on the basis of the data from household budgets. The relationships so derived, regardless of whether these are strictly of the nature that he originally discovered in the case of food are generally termed Engels function in his honour.

A. Theoretical Framework

Engel functions aim to describe the influence of household income on household consumption, but it is easily clear that the level of household income is not the only factor affecting its consumption. The level of consumption of a particular commodity for a given household is likely to be influenced also by its size and the age-sex composition of its members, its geographical location, the ethnic origin and religion of its members their holdings of liquid assets, the price the commodity in question as well as those of other commodities and other similar factors. The consumption (C) of the 'i'th commodity for the 'r'th household may thus be postulated as,

$$Cir = fi\ (Yr; P_1, \ldots\ldots, Pn; Tir \ldots, Tkr; Uir)$$

where Yr is the income of the rth household, Pl, ..., Pn are the prices of n commodities, Tir, ..., Tkr are the values of the various taste and preferable factors. Tl, ..., Tk for the rth household, and Uir is the error term; fi being not dependent on r. The taste and preference factors may be conceived of as being determined by the 'r'th household's size and sex-age distribution, location, ethnic origin and religion and the like.

In the Engel analysis, only the more important factor could be taken into account. Other factors are assumed unimportant which gives rise to an error term which conforms to some probability distribution.

In order to faciliate empirical investigation, it is normally assumed that Engel functions are moderately "well-behaved", that is fairly smooth and capable of being described by appropriate formulae.

The "true" Engel curve for a given commodity may be of a very complicated shape.[12] Prais and Houthakker[13] had suggested there are two plausible properties of an Engel curve which appear desirable to be incorporated in the formulation.

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[12] Ismail, Halim, A Study of Total Expenditure Elasticities for West Malaysia, Kinabalu Publications, 1971, p. 3

[13] Ibid, p. 3.

There are,

a) that there is an initial income below which the commodity is not consumed, and

b) that there is a saturation level providing an upper limit to the quantity of the commodity consumed, which is not exceeded however high income may rise.

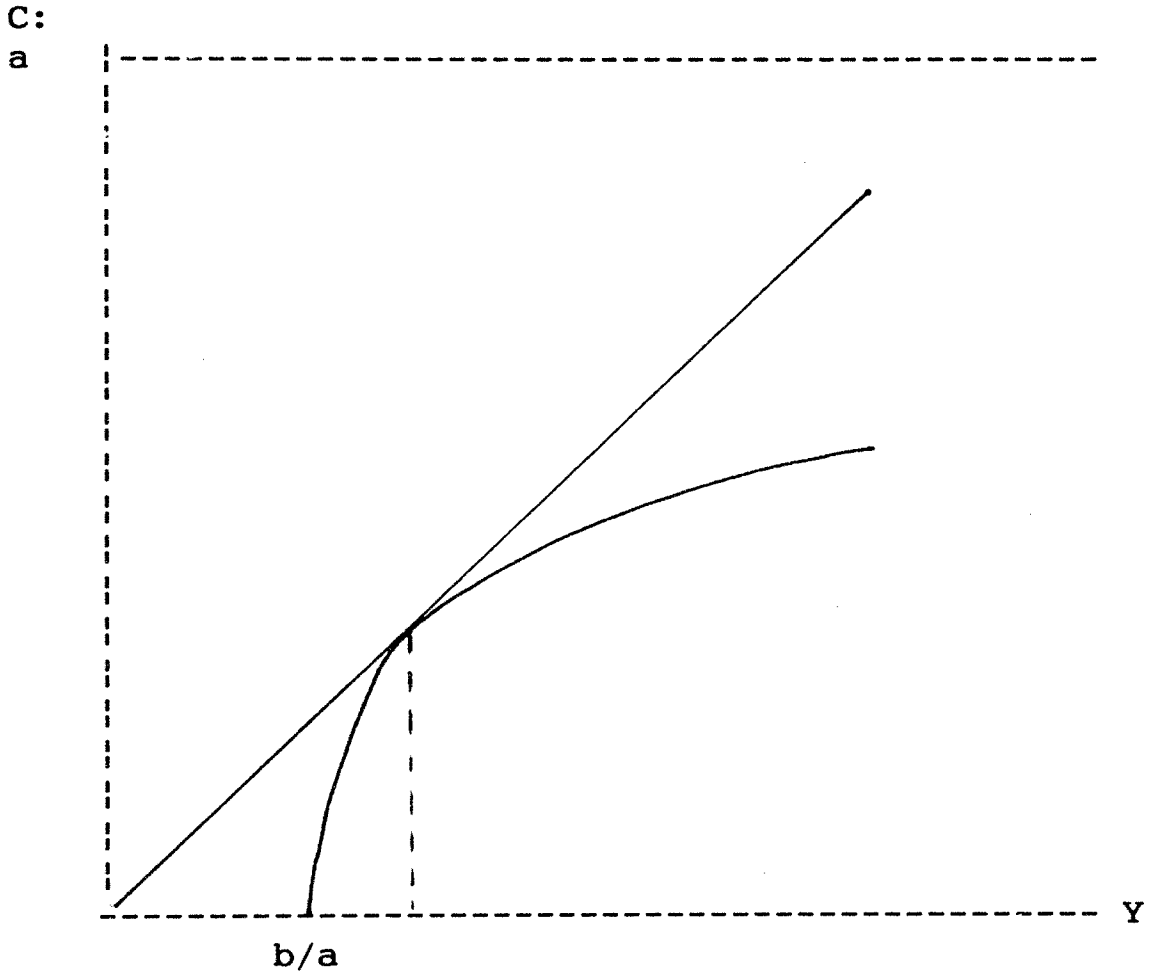
In its simplest form, such a curve may be described by a hyperbola,

$$Ci = ai - \frac{bi}{Y} + ui$$

where Ci is the level of consumption of the ith commodity, Y is the level of income, ui is the error term, and a and b are parameters. The shape of the curve is illustrated in Figure 2.2.

FIGURE 2.2

AN EXAMPLE OF A HYPERBOLA CURVE



Source: Ismail, Halim, A Study of Total Expenditure Elasticities for West Malaysia, Kinabalu Publications, 1971, p. 7

The level of income is measured along the horizontal axis. The level of consumption, meanwhile, is measured along the vertical axis. This curve has an initial income at b/a, and on asymptote providing the upper limit for the level of consumption equal to a. The elasticity of consumption diminishes steadily as income increases, and tends to zero. At one point along the curve the elasticity is unity. This is where a straight line from the origin is tangent to the curve, since at that point

$$\frac{dCi}{dY} = \frac{Ci}{Y}$$

and therefore,

$$\frac{dCi}{dY} \cdot \frac{Y}{Ci} = 1$$

This point may be termed the luxury point; since to its left the income elasticity of demand for the commodity is greater than unity and the commodity is technically a luxury, while to its right the elasticity is less than unity and the commodity is a necessity.

However, the curve does not pass through the origin. This is not suitable for describing the consumption of some commodities, such as essential foodstuffs, which are consumed even at the lowest levels of income. Further, the existence of a saturation level may be applicable to the consumption of commodities for which there is no large shift to higher qualities as income increases. For many commodities such shifts exist. The result is that, the expenditure instead of the quantity of such commodity is measured along the vertical axis, the saturation level will have a positive slope.

For food consumption, Goreux[14] had proposed a log-log inverse function,

$$\log Ci = qi - \frac{bi\ xi}{Y} \log Y + ui$$

would correspond well with theoretical expectations of the shape of Engel curve.

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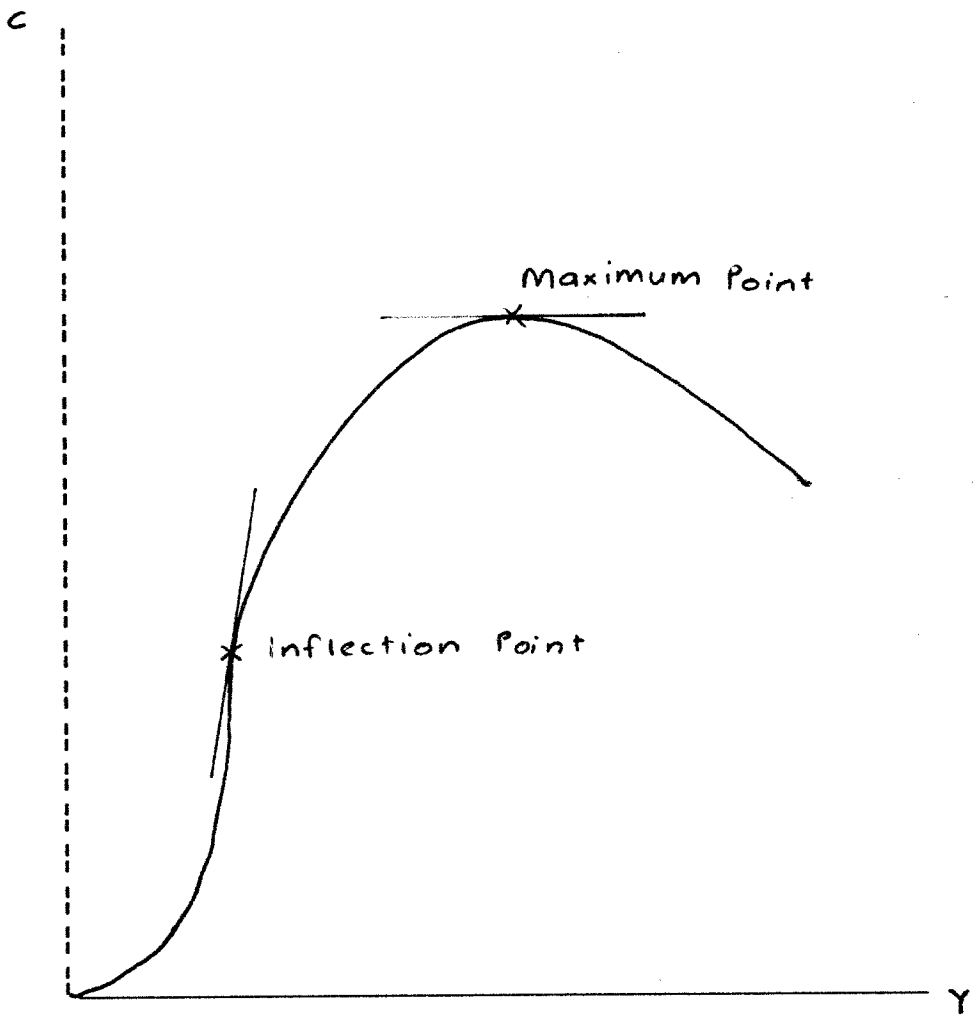
[14] Ismail, Hamid, Op. Cit., p. 6

FIGURE 2.3

AN EXAMPLE OF A LOG-LOG INVERSE CURVE



Source: Ismail, Halim, A Study of Total Expenditure Elasticities for West Malaysia, Kinabalu Publications, 1971, p. 9.

The curve, as shown above, is an extension of the hyperbola in Figure 2.2. It passes through the origin, has an inflection point, and reaches maximum value beyond which it declines. The decreasing segment beyond the maximum point represents the consumption of an inferior good, which decreases as income rises. The curve, is therefore suitable to describe the Engel function for staple food.

B. Variation in Household Size

The size of household is a non-economic factor. Yet in estimating Engel functions, this factor cannot be regarded as a random variable and therefore ignored for two basic factors. Firstly, in the household budget data there is usually a positive correlation between household income and household size. Larger households usually have more income-earners. Therefore, the estimated parameters will be biased if the household size is not taken into account. Secondly, the variation in household size is also likely to have significant effects on the level of consumption. There are two alternatives treatment of the variation in household size:

a) Homogeneity Hyphothesis
b) Allowing for Economies and Diseconomies of Scale

In our analysis (a) is used. Therefore only homogeneity hyphothesis is discussed. This is because we do not know if economies or diseconomies of scale are present in consumption at what household size.

Under this, it is assumed the level of consumption per person depends only on the level of income per person. The effects of the variaton in household size can therefore be eliminated if, instead of the total household income and consumption, per capita data for these variables are considered thus giving the double logarithmic Engel function for the example the form of

$$\log \frac{Ci}{n} = ai + bi \log \frac{y}{n} + ui,$$

Where n is the number of persons in the household concerned.

This proportion is equivalent to the assumption of constant returns to scale in the theory of production. The Engel function

$$Ci = f(Y, n)$$

is thus assumed to be homogeneous of degree one, so that

$$fi(kY, kn) = kfi(Y, n)$$

where k is an arbitrary factor, and clearly therefore

$$\frac{Ci}{n} = g_1 : \left(\frac{y}{n}\right)$$

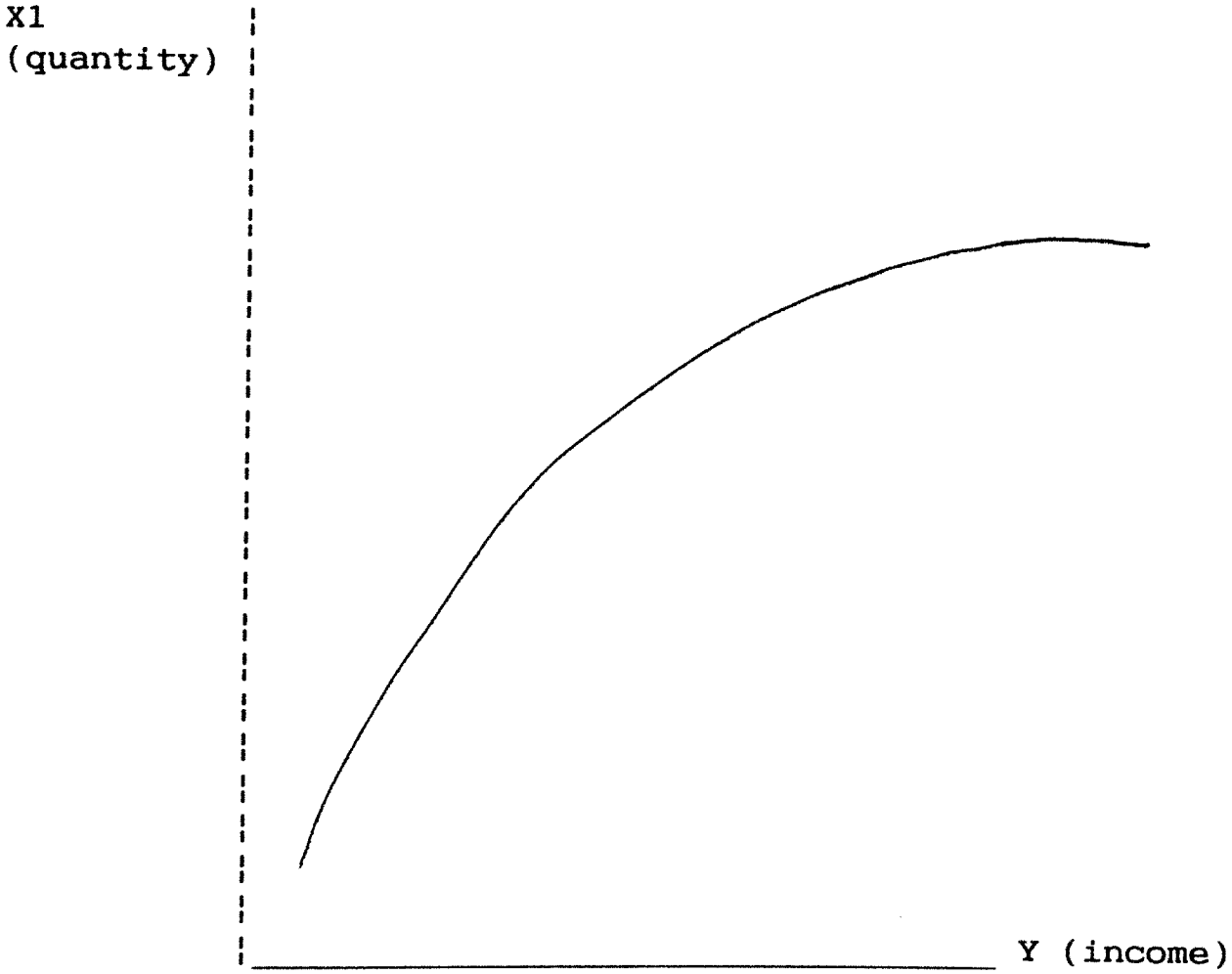
The possibility of economies or diseconomies of scale in the household consumption is thus not allowed for under this proposition.

3. Engel Curve For Food and Luxury Item

Two examples of Engel Curve which are relevant to our study are shown in the following figures.

FIGURE 2.4

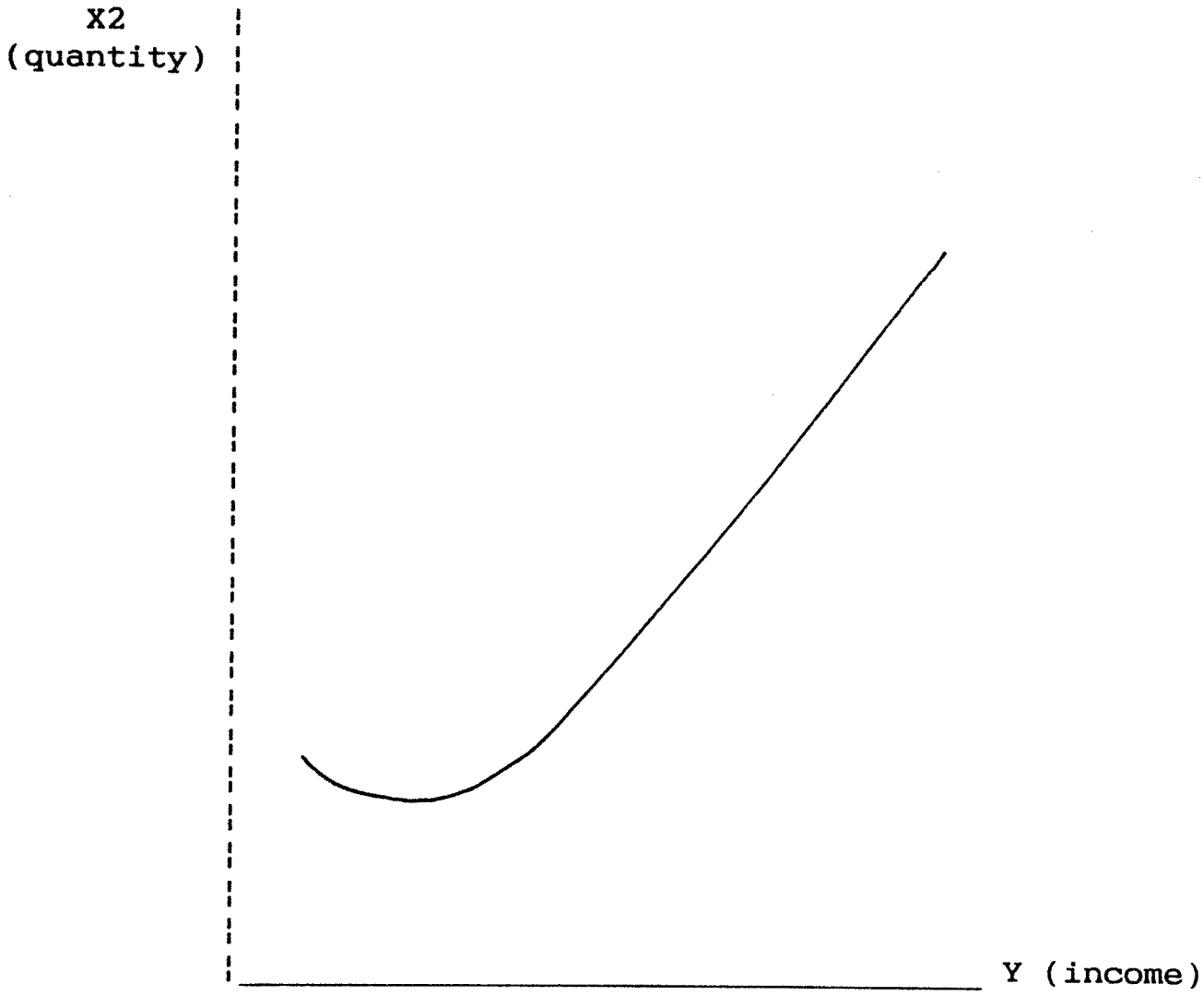
AN EXAMPLE OF ENGEL CURVE FOR SUBSISTENCE GOODS



The Figure 2.4, shows the goods which increase in consumption less proportionately than the increase in income. This goods are generally referred as a necessity. Most food commodity have been found to fall into this group.

FIGURE 2.5

AN EXAMPLE OF ENGEL CURVE FOR LUXURY GOODS



X2 exhibits more than proportionate increase in consumption when income rises. This is generally known as a luxury. In our study an example would be acquiring of an asset or valuables.