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An Objective Permanent Income Concept for The Household

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Introduction

In this paper an attempt is made to add some concreteness to the notion of permanent income which is one of the central ideas in Friedman's *A Theory of The Consumption Function* [2]. The objective is to place enough additional restrictions on the permanent income concept so as to permit its measurement by means other than the question-begging indirect measurements based on a postulated correlation with consumption.**

** Any proposed income concept for explaining empirical household decisions should of course be evaluated in terms of its correlation with consumption (or saving, or something) but it should not also be defined as "that which is correlated with consumption." Otherwise the best conceivable measure of income would be consumption itself, or one of its linear or log-linear transforms depending on your taste.

The dominant idea in the Friedman Hypothesis is that consumption is scaled to expectations of future receipts as well as to current receipts and assets. It is this forward-looking character which distinguishes the permanent income concept from its competitors*** and at the same time renders it virtually

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*** Actually the permanent income notion is also present in Modigliani-Brumberg [ ] but Friedman gave the concept the name which has achieved currency.

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non-operational. The approach taken in this study makes use of income profiles (the relation between income and age) to provide an objective "forecast" of a household's future income.

Several empirical studies have found a relation between consumption (or saving) behavior and the age, education, and occupation of the principal earner or head [1], [3], [6]. This relation is additional to the influence of current income which is also correlated with these characteristics. It has been argued, plausibly I think, that these characteristics show a relation to consumption because they provide additional information on income prospects in the future. Given this demonstrated correlation of education, etc., with consumption, the problem is to see how much of it, if any, can be attributed to a well defined, plausible, permanent income variable. The theoretical exposition which follows assumes that the pertinent long-run income information contained in the age-education-occupation variables consists in the shape of the income profile. Further assumptions about household extrapolation of current experience and discounting of future receipts are made and finally an objectively defined measure is produced. This concocted "permanent income" is then applied to a sample of households and evaluated by comparing its ability to "explain" consumption with the ability of income; and also by its ability to account for the influence of age, education and occupation.

The Basic Theory

Let the population of households be divided into m subclasses on the basis of age of head, his education, occupation, race, etc. It is assumed that within each such class the time-shape of household income expectations is similar in the following sense:

Let $\hat{y}_{ij}(a)$ denote the income expectations for household i in class j expressed as a function of the age of the head. The assumption that the time-shapes are the same within a class means that $\hat{y}_{ij}(a)/\ \hat{y}_{kj}(a) = V_{ik}$ for all a greater than the current age of both heads of households.

This assumption permits the expectation function to be written in the form:

$$\hat{y}_{ij}(a) = (1 + q_i)\ \ \hat{y}_j(a) \tag{1}$$

where: q_i is a proportionality factor peculiar to the household, $\bar{y}_j(a)$ is the average expectation function for the j^{th} group.

The proportionality factor q_i is assumed to be related to the percentage deviation of the household's current or recent income from the average current income of households in the same group. More specifically, assume that:

$$q_i = \lambda \ \frac{y_{ijo} - \bar{y}_{jo}}{\bar{y}_{jo}} \tag{2}$$

or $$1 + q_i = \frac{\lambda\ y_{ijo} + (1-\lambda)\bar{y}_{jo}}{\bar{y}_{jo}}$$

where y_{ijo} = current income rate of household i in group j

$\bar{y}_{jo}$ = mean current income rate in group j

λ = a parameter describing extrapolative tendencies

Now define permanent income as:

$$y_{pij} = \frac{\int_{a_o}^{h} \hat{y}_{ij}(a)\, e^{-r(a-a_o)}\, da}{\int_{a_o}^{h} e^{-r(a-a_o)}\, da} \qquad (3)$$

where: r = an appropriate rate of discount for expected future receipts,

h = horizon of households, expressed as an age of the head

a_o = current age of heads in class j.

$$\text{Let } \bar{y}_{pj} = \frac{\int_{a_o}^{h} \bar{y}_j(a)\, e^{-r(a-a_o)}\, da}{\int_{\varepsilon_o}^{h} e^{-r(a-a_o)}\, da} \qquad (4)$$

Equation [3] can now be written, using (1) and (2) as:

$$y_{pij} = \left[\frac{\lambda\, y_{ijo} + (1-\lambda)\, \bar{y}_{jo}}{\bar{y}_{jo}}\right] \bar{y}_{pj} \qquad (5)$$

$$= (1-\lambda)\, \bar{y}_{pj} + \lambda\, \frac{y_{ijo}}{\bar{y}_{jo}}\, \bar{y}_{pj}$$

$$= \alpha_j(r,\lambda,h) + \beta_j\,(r,\lambda,h) Y_{ijo}$$

where $\alpha_j(r,\lambda,h) = (1-\lambda) \dfrac{\int_{a_o}^{h} \bar{y}j(a) e^{-r(a-a_o)}\, da}{\int_{a_o}^{h} e^{-r(a-a_o)}\, da}$

and $\beta_j(r,\lambda,h) = \dfrac{\lambda}{\bar{y}_{jo}} \dfrac{\int_{a_o}^{h} \bar{y}j(a) e^{-r(a-a_o)}\, du}{\int_{a_o}^{h} e^{-r(a-a_o)}\, da} = \dfrac{\lambda\, \alpha_j(r,\lambda,h)}{(1-\lambda)\, \bar{y}_{jo}}$

Clearly, within any class y_p is a constant linear function of current income for each member of the class. If there is some diversity among classes in the functions $\bar{y}_j(a)$, then y_p will differ non-trivially from current income over any collection of classes of households. It is thus of interest to determine whether y_p so defined is effective in explaining the consumption behavior of households.

If current income, y_{ijo}, mean current income, $\bar{y}_{jo}$, and the average expectation function $\bar{y}_j(a)$ can be taken a given data for each class of households. There remain three parameters, r, λ, and h, which must be specified or estimated before the definition of y_p is complete. In the empirical work below, h is set at 75 years, 5 alternative values of r are tried, ranging from zero to .5, and λ is estimated by least squares along with other parameters of a consumption function.

The discount rate introduced in equation (3) deserves some discussion. It is intended to serve a double purpose. In the first rôle it allows for the rate of return on capital; it reflects the fact that $10,000 received ten years from now will buy a smaller annuity income (to start immediately) than would $10,000 at the present. If there were no uncertainty attached to the expected future receipts there would be no second purpose of the discount factor. Recognizing uncertainty, one rough and ready way of diminishing the importance, in the average y_p, of less certain expectations is to assume that uncertainty increases with remoteness in time and then simply apply a declining weight to successively more remote future expected returns. This is, then, the second purpose of the discount rate. The uncertainty part of the discount rate is no more nor less than the reciprocal of Friedman's "horizon." Following Friedman a bit further, the basic framework above might be altered to recognize more than one type of income, say property income which would have a small uncertainty discount and wage and salary income which would have a relatively large discount.

The Empirical Analysis

This application of the ideas outlined above should be regarded only as a first and tentative trial. The objective is to see if this approach to permanent income holds any promise for explaining consumption. If the approach appears promising, then a more extensive and painstaking application is justified. The permanent income variable defined above will be evaluated by comparing it with ordinary current income as a variable for explaining consumption in a regression model.

DATA. The data were drawn from the BLS Survey of Consumer Expenditures which was carried out in early 1951 and obtained economic magnitudes for the calendar year 1950. The set of observations used for this investigative was originally prepared for the study of the household's capital account by Tobin and Watts [7]. From the nearly 12,500 households included in the BLS survey, a more homogeneous set of observations was drawn. This set included only multi-person, white households with employed male heads between the ages of 25 and 74. Some additional households were removed because of absence of information needed for the analysis.

These observations (around 8400) were then classified into 128 classes on the basis of home ownership (2 classes), age (4 classes), education (3 classes) and occupation (6 classes). The classes of college-educated unskilled laborers and professionals without high-school education were virtually empty and so were eliminated. This accounts for the difference between 2 x 4 x 3 x 6 = 144 and the final 128 classes.

The mean income in each of the 128 classes was used to provide estimates of the income profiles for educative x occupation x home-ownership classes. Regression analysis using the estimated permanent income was performed only for the two youngest age groups, 25-34 and 35-44. The reasons for limiting the analysis to the relatively young are fairly obvious. It is primarily among the younger households that a substantial divergence between current and permanent income can be expected; only among these households can a superiority of the permanent income be detected by the method used here. Again, some older households may depend more upon property income or at least upon accumulated assets and this would tend to obscure relationships unless these considerations were explicitly included in the analysis.

The separation of homeowners and renters was maintained for this analysis. The problem of imputing income and consumption flows arising from the services of the home can be sidestepped by carrying out parallel analyses for every type of household. The non-comparability of homeowners and renters is probably less important for this study than for the analysis of the capital accounts but it is still a knotty problem.

The two age classes were also kept separate for the regression analysis again for the purpose of avoiding explicit treatment of a difficult variable, this time the possible influence of the life-cycle on consumption behavior. Together with the split on homeowners this makes 4 groups of households to be analyzed in parallel. Within each group there are 16 classes differing in occupation and/or education. A second analysis was also performed with the professional and self-employed groups removed, leaving only 11 classes in each of the four groups. The purpose of leaving out the two occupations was to determine whether the observed results had been dominated by the wider ranges of the variables found in those occupation groups.

VARIABLES. Disposable income, y, received during 1950 as recorded by BLS was the "current income" variable used for the analysis. Family size, f, (average number of full-time family members) was also used in the form provided by the basic data. Three different concepts of consumption were used. The first and most inclusive, C_1, was measured as the difference between disposable income and net financial saving, which was in turn derived from BLS data as net change in assets less net change in liabilities. Although houses and mortgage debt were included among the assets and liabilities, automobiles and automobile loans were not. The second consumption, C_2, concept was obtained by subtracting automobile purchases (net of trade-in) from C_1. The third one, C_3, was in turn obtained by subtracting purchases of household durable goods from C_2 to get, finally, non-durable consumption. No one of these measures of consumption can be regarded as entirely satisfactory. Presumably a measure such as C_3 plus depreciation and capital changes on the stock of durable goods would be ideal but instead of attempting this refinement, this investigation uses a range of alternative definitions.

Finally, the measure of permanent income was computed in the following manner. $\bar{y}_j(a)$ was taken directly from the mean incomes in the four age classes within an education x occupation x home ownership category. It was assumed that a household with an "average" 24 year old head could look forward to 10 years income at the mean level in his category for persons aged 25-34, another 10 years at the 35-44 income level, 10 at the 45-54 income level and finally 20 years at the 55-74 level. The mean incomes in age classes were used without any adjustment or attempt at smoothing to get a more plausible looking income profile.

Mean permanent income, $\bar{y}_{pj}$, was derived from the income means by assuming that all households in a ten year age bracket were in the middle of it, i.e., would remain in the same class for 5 more years. For purposes of discounting future income, it was assumed that all income earned in a 10 or 20 year age span would be paid in the middle of the period. The equation for the mean permanent income for members of the 25-34 age classes is:

$$\bar{y}^{1}_{pj} = \frac{5\,\bar{y}_{j1} + 10\,\bar{y}_{j2}\,d^{10} + 10\,\bar{y}_{j3}\,d^{20} + 20\,\bar{y}_{j4}\,d^{35}}{5 + 10d^{10} + 10d^{20} + 20d^{35}},$$

where $\bar{y}_{j1}$ = mean income in 25-34 age class,

$\bar{y}_{j2}$ = mean income in 35-44 age class,

$\bar{y}_{j3}$ = mean income in 45-54 age class,

$\bar{y}_{j4}$ = mean income in 55-74 age class,

$d = \frac{1}{1+r}$ = discount factor.

For the 35-44 year olds the equation is:

$$\bar{y}^{2}_{pj} = \frac{5\,\bar{y}_{j2} + 10\,\bar{y}_{j3}\,d^{10} + 20\,\bar{y}_{j4}\,d^{25}}{5 + 10\,d^{10} + 20\,d^{25}}$$

The weights implied by these equations for each of 3 discount factors are shown in Table 1.

Table 1

Weights Applied to Mean Incomes in Age Classes

		25-34 $\bar{y}_1$	35-44 $\bar{y}_2$	45-54 $\bar{y}_3$	55-74 $\bar{y}_4$
for $\bar{y}_p$ of	d = 1.00	.1111	.2222	.2222	.4445
25-34	= .85	.6733	.2653	.0522	.0092
year - olds	= .67	.9642	.0351	.0007	.0000
for $\bar{y}_p$ of	d = 1.00	-	.1429	.2857	.5714
35-44	= .85	-	.6836	.2694	.0470
year-olds	= .67	-	.9647	.0351	.0002

In the regression analysis two variables were used to represent permanent income as defined in (5), they are, for a member of the j^{th} class:

$$y_p(1) = \frac{y}{\bar{y}_{jo}} \; \bar{y}_{pj}$$

and $$\bar{y}_p(0) = \bar{y}_{pj}$$

These correspond to permanent income for $\lambda = 1$ and $\lambda = 0$ respectively. This permits the estimation of λ as a part of the regression. The coefficients of these two variables when both are used in a consumption equation should be:

$\lambda\beta$ for $y_p(1)$ and

$(1-\lambda)\beta$ for $y_p(0)$, where β is the slope of the relation between consumption and permanent income.

An estimate of the slope β can be obtained as the sum of the two coefficients and λ is estimated by the ratio of the coefficient of $y_p(1)$ to this sum.

THE REGRESSION EQUATIONS

Four basic regression equations were used in the analysis. They are:

I. $Ci = a_o^i + a_1^i y + a_2^i f$

II. $Ci = b_o^i + b_1^i y_{pj}(1) + b_2^i y_{pj}(0) + b_3^i f$

III. $Ci = c_o^i + c_1^i y + c_2^i y_{pj}(1) + c_3^i y_{pj}(0) + c_4^i f$

IV. $Ci = d_o^i + d_1^i y + d_2^i \bar{y}_{1j} + d_3^i \bar{y}_{2j} + d_4^i \bar{y}_{3j} + d_5^i \bar{y}_{4j} + d_6^i f$

The index $\underline{i}$ takes the values 1, 2, 3, corresponding to the three different consumption concepts. Variables subscripted by $\underline{j}$ are constants (or constant functions) within each education x occupation class but vary among the 16 or 11 such classes included in each regression. The family size variable, f, was included purely as a control and no analysis has been made of its coefficients other than to note that they were positive and generally larger in the C_3 regressions than in the C_1 or C_2 regressions.

It will be recalled that the 4 regression equations are to be estimated over 8 different groups of education x occupation classes. These groups differ in age, home-ownership and presence of professional and self-employed. Also equations II and III were repeated 5 times with different discount factors used in the calculation of permanent income.

Table 2 displays the multiple R^2's achieved by the basic regressions. The R^2's shown for equations II and III were computed using a discount rate of 0.5 (i.e., d = .67). This very high discount rate proved best of the five that were tried in the sense that it provided the largest R^2 in all but 2 of the II regressions. For these exceptions the winner by a small margin was the next lower discount rate, r = .33. In the case of equation III there was no clearly discernable difference among the R^2's for different discount rates but the larger ones were either slightly better or worse only in the third decimal place.

The table shows that in every case equation II which uses the permanent income variable is superior to equation I which uses current income. The superiority may not seem staggering but it should be noted that nothing prevents

Table 2

Multiple R^2's For Basic Regressions*

dependent variable	regression equation	Full Sample: Homeowners 25-34	Full Sample: Homeowners 35-44	Full Sample: Renters 25-34	Full Sample: Renters 35-44	excluding Professional and Self-Employed: Homeowners 25-34	excluding Professional and Self-Employed: Homeowners 35-44	excluding Professional and Self-Employed: Renters 25-34	excluding Professional and Self-Employed: Renters 35-44
C_1	I	.534	.646	.608	.608	.537	.610	.649	.742
	II	.540	.652	.615	.614	.540	.614	.652	.744
	III	.557	.652	.615	.631	.541	.614	.653	.747
	IV	.544	.651	.614	.618	.542	.614	.653	.747
C_2	I	.557	.638	.626	.631	.553	.618	.667	.791
	II	.566	.644	.632	.639	.559	.627	.669	.795
	III	.579	.644	.633	.655	.560	.628	.671	.798
	IV	.568	.646	.634	.645	.563	.629	.671	.798
C_3	I	.516	.609	.633	.635	.488	.597	.668	.792
	II	.525	.620	.641	.643	.496	.605	.672	.795
	III	.536	.620	.641	.659	.496	.606	.674	.800
	IV	.527	.622	.642	.649	.498	.607	.674	.799
Number of Observations		881	1368	1444	1072	631	895	1104	836

* All multiple correlations were significant over-all. Comparative tests are shown in table 3.

Table 3

Squared Partial Correlations for Testing the Marginal Influence of Permanent Income, Current Income and The Row Means in Age Classes

		Full Sample				Excluding Professional and Self-Employed			
		Homeowners		Renters		Homeowners		Renters	
		25-34	35-44	25-34	35-44	25-34	35-44	25-34	35-44
y_p given y and f	C_1	.0494**	.0188**	.0187**	.0577**	.0091	.0102*	.0101**	.0222**
	C_2	.0482**	.0183**	.0180**	.0659**	.0148**	.0243**	.0132**	.0320**
	C_3	.0412**	.0284**	.0227**	.0643**	.0166**	.0204**	.0189**	.0411**
critical value	.95	.0068	.0044	.0042	.0056	.0096	.0068	.0054	.0072
	.99	.0105	.0067	.0064	.0086	.0147	.0103	.0071	.0110
y given y_p and f	C_1	.0368**	.0002	.0013	.0447**	.0017	.0001	.0018	.0139**
	C_2	.0295**	.0002	.0005	.0450**	.0011	.0022	.0049*	.0166**
	C_3	.0246**	.0002	.0009	.0431**	.0007	.0020	.0074**	.0214**
critical value	.95	.0044	.0028	.0027	.0036	.0061	.0043	.0035	.0046
	.99	.0076	.0049	.0046	.0062	.0106	.0074	.0060	.0080
$\bar{y}_{aj}$ given y and f	C_1	.0213**	.0201**	.0204**	.0305**	.0120	.0114*	.0118*	.0222**
	C_2	.0236**	.0232**	.0204**	.0432**	.0208*	.0284**	.0146**	.0302**
	C_3	.0214**	.0319**	.0259**	.0385**	.0213**	.0246**	.0180**	.0340**
critical value	.95	.0108	.0069	.0066	.0089	.0151	.0107	.0086	.0114
	.99	.0151	.0097	.0092	.0124	.0211	.0149	.0120	.0159

* Denotes significance at .95

** Denotes significance at .99

expectations in that current income is an indicator of "transitory" income when permanent income is held constant; durable goods purchases, in turn, are likely to be correlated with the resulting liquidity.

The last section of table 3 contains squared multiple-partial correlations for the four age-class income means that went into the definition of y_p for each education x occupation class. These correlations substantiate the notion that there is some useful information contained in the average income profile. The R^2's in table 2 suggest that much of this information has been captured in the definition of permanent incomes.

Previous evidence showing a correlation between residuals from a consumption equation and education and/or occupation was noted in the introduction. Table 4 presents squared multiple-partial correlations of the residuals from equations I, II, and III with dummy (binary) variables representing an education x occupation classification.* A striking result is that these correlations are almost all

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* 16 classes in the full sample, 11 when professional and self-employed are omitted.

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significant for equation I residuals but almost all non-significant for equations II and III residuals. It appears that the "cooked-up" permanent income does account for much of the influence of education and occupation. There are reasons, such as tastes, for expecting variables like education and occupation to affect consumption decisions apart from their correlation with permanent income. Consequently one should not necessarily expect zero correlations with the residuals

Table 4

Squared Multiple Partial Correlations of Residuals from
I, II and III With Education x Occupation Dummies

		Full Sample				Excl Professional & Self Employed			
		Homeowners		Renters		Homeowners		Renters	
		25-34	35-44	25-34	35-44	25-34	35-44	25-34	35-44
C_1	I	.0316*	.0282**	.0254**	.0455**	.0197	.0166	.0162	.0265*
	II	.0158	.0109	.0070	.0273*	.0124	.0062	.0079	.0158
	III	.0161	.0096	.0096	.0221	.0103	.0053	.0064	.0142
C_2	I	.0363**	.0309**	.0264**	.0537**	.0264	.0362**	.0189*	.0319**
	II	.0144	.0141	.0079	.0274*	.0130	.0090	.0107	.0188
	III	.0175	.0104	.0107	.0151	.0174	.0080	.0081	.0139
C_3	I	.0335*	.0434**	.0328**	.0555**	.0254	.0288**	.0238**	.0385**
	II	.0141	.0168	.0096	.0290*	.0096	.0095	.0126	.0219
	III	.0166	.0132	.0137	.0198	.0118	.0067	.0117	.0196
critical values									
	.95	.0293	.0187	.0176	.0239	.0330	.0230	.0186	.0247
	.99	.0347	.0222	.0210	.0284	.0405	.0286	.0232	.0305
Number of Observations		881	1368	1444	1072	631	895	1104	836
Number of Groups		16	16	16	16	11	11	11	11

* Denotes significance at .95
** Denotes significance at .99

from equations II and III. The reduction of the correlations does provide strong evidence that y_p has the ability to account for some of the effects that have been attributed to permanent income.

Finally table 5 presents estimates of λ (the extrapolation coefficient) and β [the slope of C_i on $y_p(\hat{\lambda})$] for equations II and III. The estimates for equation I are reasonably stable with $\hat{\lambda}$ around .75 and $\hat{\beta}$ varying plausibly with the consumption concept and the composition of the group of observations. The estimates for equation III, on the other hand, are a bit alarming. The reason is that y_p is, after all, highly correlated with current income. Given this multi-colinearity the estimates are extremely sensitive to those observations which diverge from the average relation between y and y_p; any peculiarities of those observations will tend to be magnified in the estimates.

It is simply that the multi colinearity in general increases the dispersion of the sampling distribution, it has done so with a vengeance in this case. The last 3 lines of table 5 show the sum of the coefficients of current income and $y_p(1)$. This sum measures the derivative of equation 3 with respect to current income if $\lambda = 1$ and the income profile is perfectly flat. This statistic is at least positive and of reasonable magnitude.

Summary

In terms of its limited objectives, this study has been successful. The set of restrictions devised for objectively measuring permanent income independent from consumption have provided a variable with substantial promise. Much more work is needed both to improve on the crudeness of the present application and to verify the usefulness of the variable after the improvements are made.

discount rate .5

Table 5

Selected Estimated Coefficients From Equations II and III

Coefficient	Dependent Variable	Full Sample: Homeowners 11	12	Renters 21	22	Excluding Professional and Self Employed: Homeowners 31	32	Renters 41	42
$\hat{\lambda}_{II}$	C_1	.74	.78	.75	.75	.76	.79	.82	.82
$= \frac{b_1}{b_1+b_2}$	C_2	.71	.78	.76	.73	.72	.72	.84	.81
	C_3	.71	.73	.75	.73	.67	.73	.81	.81
$\hat{\beta}_{II}$	C_1	.81	.81	1.02	.83	1.04	1.05	1.05	1.09
$= b_1+b_2$	C_2	.79	.75	.90	.79	1.00	1.06	.92	1.00
	C_3	.70	.65	.84	.73	.93	.93	.87	.92
$\hat{\lambda}_{III}$	C_1	1.05	.71	1.29	1.04	1.09	1.72	.95	1.03
$= \frac{c_2}{c_2+c_3}$	C_2	1.08	.70	2.60	1.05	.92	.96	.97	1.03
	C_3	1.00	.64	1.60	1.06	.90	.96	.97	1.03
$\hat{\beta}_{III}$	C_1	-10.16	.60	-.94	-5.89	-2.69	-.32	3.85	-7.23
$= c_2+c_3$	C_2	-8.45	.54	-.14	-5.14	3.69	6.34	4.78	-6.75
	C_3	-7.52	.49	-.39	-4.59	3.03	5.58	5.23	-7.13
c_1+c_2	C_1	.72	.64	.78	.66	.80	.83	.86	.92
	C_2	.66	.59	.69	.60	.71	.74	.75	.83
	C_3	.58	.47	.64	.56	.61	.65	.69	.76

In particular, better data on income profiles than can be obtained from simple means of age classes is needed. Such data could come from sources quite independent of the sample of households analyzed. The present study proceeded on the heroic assumption that income over a man's life varies along a curve similar to the mean income-age relation in a cross-section. Some attempt to adjust for the gross distortions resulting from this assumption are in order unless more pertinent data can be developed.

The present study used the deviation of current income from the mean in the same wage x education x occupation class as a basis for extrapolation into the future. Perhaps information from the past should be added to give a better indication of a household's "normal" deviation from the mean.

The possibility of treating separately income from different sources with different degrees of uncertainty has already been mentioned. Such a device as well as explicit treatment of accumulated wealth (whether invested or not) would seem to be required before the analysis can be applied to a representative cross-section.

The needed improvements listed above, together with the readers own list, are argument enough to discourage any attempt to use any of the specific parameter estimates to prove anyone's argument about the Friedman Hypothesis. To reiterate, the objective was to examine a specific technique for measuring permanent income. This has been accomplished and the evidence has indicated its usefulness.

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