

QUESTIONS AND OBSERVATIONS ON THE ARTICLE
"ON THE ACCURACY OF PHILIPPINE NATIONAL
INCOME ACCOUNTS" BY GERARDO P. SICAT*

BY

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I. *Policy Regarding Publication of Articles in the Philippine Review of Business and Economics*

A. *Observation:*

The *Philippine Review of Business and Economics* in its Vol 1, No. 2 issue dated October 8, 1964 published an article entitled, "On the accuracy of Philippine National Income Accounts" by Gerardo P. Sicat describing the estimation procedures employed in the preparation of Philippine national income accounts and assessing the qualitative value of the estimates. Government statistical policies were discussed and criticized by the author who did not even bother to consult with authorities concerned and verify facts relevant to the matter.

B. *Question:*

(a) What policy or policies has the Editorial Board of PRBE adopted concerning (1) the basis for acceptance of articles and related materials for publication, and (2) extent of responsibility of the Board for whatever is printed in the Review.¹

II. *Estimation Procedures and Qualitative Value of Published National Income Estimates and Accuracy of National Economic Council (NEC) series for personal consumption expenditures and for private disposable income*

¹ Editor's Note: The provisions in the Revised Code of the University of the Philippines which are pertinent to Mr. Bantegui's questions are the following:

Chapter 6, Article 86, Section 1: "Except as to Bulletins and Catalogues, the Dean or Director shall have full charge over all publications of his college or school. x x x x"

Chapter 25, Article 249: "Authors of articles appearing in University Publications shall be severally responsible for the opinions expressed therein."

A. Observation No. 1

In analyzing the NEC series on personal consumption expenditure and private disposable income, Sicat used the following "simplest consumption function" of the linear form¹

$$C_t = a + bY_t + u_t$$

where C_t = private consumption in year t

Y_t = private disposable income in year t

u_t = the random error in year t

Using NEC 15-year data on C and Y Sicat calculated the following estimates of the consumption function:

	a	b	r	c/y
"current"	-465.4	1.069	0.99	1.004
"constant"	554.2	1.094	0.99	1.011

B. Questions:

(a) Has Sicat any particular reason for using data for 15 years in analyzing the series?²

(b) In obtaining estimates of the consumption function would not data for a shorter period reveal more meaningful results?

A. Observation No. 2

Sicat observed: "The derived consumption functions for both types of data fit very well as the very high estimates for r will show". Appar-

¹The above relationship between consumption and income (considered by many as a Keynesian convention) advances, among others, two definite propositions (a) real consumption expenditures are a stable function of real income, and (b) the marginal propensity to consume is positive, but less than one.

²Gardner Ackley in his book, "Macroeconomic Theory" indicated that "any view that the consumption is both linear and non-proportional produces ridiculous implications when such a function is assumed stable over long periods of time."

Ackley showed how a mere 20 years ago in the U.S. when total output (at full employment) was 50 billion dollars the consumption function $c = +.4y$ (the function generally considered to be prevailing in the U.S. "now") would yield a value of c of 50. This would indicate that the total output of 50 would have been consumed with nothing available either for government or investment. Go back another 25 years and consumption would greatly have exceed income.

Duesenberry studying the nature of the consumption-income relationship for a long period in the U.S. proposed the following equation:^o

$$C_t = 1.196 Y_t - \frac{.25 (Y_t)^2}{Y_o}$$

where C_t = private consumption in the year t.

Y_o = private disposable income in the previous peak.

Y_t = private disposable income in year t.

^o Gardner Ackley, *Macroeconomic Theory*, pp. 243-244.

ently convinced of the validity of his calculations Sicat proceeded forthwith to make a "quick reflection on the nature of the estimates". Nothing that the estimates of b (1.069 at current prices and 1.094 at constant prices) which the data generated were greater than 1 and thus indicated "dissavings" he pointed out that it was highly doubtful that for such a period (14 years) the household sector would be spending more than its additional income.

B. *Questions:*

(a) Considering that consumption expenditures constitute a substantial part of total output and consequently, a major factor determining income (when consumption is high or low, rises or falls, income tends to be high or low, to increase or decrease) wouldn't it be natural to expect a very high correlation (an r value close to 1) between consumption and income in national income accounts? In such a situation would not there be good correlation even if consumption changes were *not correlated* to income changes?

(b) Speaking of "goodness of fit", did Sicat attempt to use the X^2 (chi-square) test on his data?¹

(c) Had Sicat tested the significance of the estimates of b data which he obtained from his calculations and on which he based his appraisal of the accuracy of the absolute levels of the NEC series on personal consumption expenditure and private disposable income?

(d) Do the values of b (1.069 and 1.094) obtained by Sicat from his calculations vary significantly from 1?²

A. *Observation No. 3*

Sicat cited the pioneering work of Richard W. Hooley on saving as the most significant evidence on the inaccuracies of the national income accounts regarding saving and consumption expenditures. In so evaluating the work of Hooley it may be presumed that Sicat had looked into the accuracy of the basic data used by Hooley in obtaining his (Hooley's) estimates on saving and consumption expenditure. Sicat described the procedure employed by Hooley in compiling data on saving as follows: "Hooley compiled data on saving bringing together two sets of independent estimates. The first is based on changes in

¹ The application of an X^2 test on the estimated consumption function of the linear form as calculated by Sicat actually showed a poor fit. The observed value of X^2 was found to be 88.398 as against an allowable value of 22.362 at the 5% significance level.

² The application of the t -test to Sicat's estimate of b (1.069) showed that it is not significantly different from 1. The same result indicates that the 95 percent confidence interval for b lies between 0.98 and 1.12.

the net assets of households. The second is a direct estimate of household consumption using as much of the PSSH,¹ foreign trade, and domestic production data in the estimation of consumption expenditure. Saving was computed as a residual from personal disposable income."

B. *Questions:*

(a) Had Sicat looked into the level of the errors resulting from adding up all the estimates of the above listed items that lead to the major aggregates used by Hooley in his estimates?

(b) Did Hooley ever make an attempt to ascertain the margins of errors of the following: (1) total consumption expenditure and the various items (food, beverages, tobacco, clothing, etc.) comprising it? (2) Saving which was computed as a residual from personal disposable income?

(c) How big were such margins of errors?

A. *Observation No. 4*

Sicat cited the study made by Trinidad based on a survey of marketing mark-ups for capital goods as one of the papers giving *conclusive* evidence on the underestimation of capital formation in the Philippines.

B. *Questions:*

(a) Is Sicat aware that the mark-up ratios referred to in the Trinidad study were derived from a survey of only 26 establishments, of which only 12 responded?

(b) Would Sicat consider the results of such a statistical inquiry conclusive?

A. *Observation No. 5*

Sicat shows great impatience over the little use made of the results of the following: (a) Annual Survey of Manufacturers, (b) Philippine Statistical Survey of Households, and other surveys conducted since the mid-1950's and (c) the nationwide censuses conducted since 1960.

B. *Questions:*

(a) Does Sicat know that:

(1) Except for an advance report on summary statistics for large manufacturing establishments (with an average total employment

¹ Philippine Statistical Survey of Households.

of 10 or more persons) which was released last month (October 1964) the results of the 1961 economic census have not been released up to the present?

(2) As suspected, such data as gross value added, value of fixed assets, expenditures for new assets and related information currently obtainable from the annual Philippine Statistical Survey of Manufactures (PSSM) have been found to be greatly understated? The value added in manufacturing from various sources are shown as follows: PSSM, ₱1.533 million; Economic Census of 1961, ₱1.987 million (for large establishments employing 10 or more persons, others excluded); and National Income Accounts, ₱2,090 million)?

(3) Only two rounds of the Philippine Statistical Survey of Households (PSSH), namely, that in March 1957 and April 1962 collected data on income and expenditures.

(b) Would it be to the best interest of research organizations like the IEDR¹ for the OSCAS² to revise the NEC series on National Income Accounts on a piece-meal basis or would it be better to revise estimates using as basis for revision benchmark data such as those coming from the economic censuses?

A. *Observation No. 6*

A view was offered concerning overall statistical policy particularly on the improvement of the overall statistical services of the government including the precision of statistical data produced. The desirability of current plans to undertake the preparation of input-output tables was likewise questioned.

B. *Questions:*

(a) Is Sicut aware of the following project proposals submitted by the NEC?

(1) Project on the Integration of Government Statistical Services for FY 1964-1965 and FY 1965-1966 submitted to the Chairman of the National Economic Council on December 23, 1963 and subsequently favorably recommended for approval to the Budget Commissioner? (The statistical activities contemplated cover the following areas: (a) Improvement of existing statistical services, (b) Expansion of some vital government statistical services, and (c) Integrated planning, programming and evaluation of statistical project activities).

¹ Institute of Economic Development and Research, University of the Philippines.

² Office of Statistical Coordination and Standards.

(2) A Statistical Research and Development Project covering the period from January 1, 1965 to June 30, 1967 was submitted on August 20, 1964 to the Chairman of the NEC by the Director of the OSCAS. The project aims, among others, to develop the conceptual and structural framework and to organize basic statistical information for an inter-industry accounting system for the Philippines. Technical support for this project in the form of technical services of four Japanese experts and technicians has earlier been requested and subsequently programmed for implementation under the 8th Year Reparations Schedule. The training of five OSCAS staff members for a period of six months each has likewise been programmed under a special arrangement with the University of Osaka.

In connection with this project maximum utilization of the data obtainable from the 1961 Economic Census, foreign trade statistics and other related data from the Bureau of the Census and Statistics and other sources not only for the preparation of input-output tables but also to meet the data requirements of the NEC in improving its national income estimates shall be made.

(b) Incidentally, is Sicut aware that the central core of activities relating to the preparation of national income estimates and input-output tables in Japan is its Central Planning Agency (CPA)?

(c) Is he likewise aware that one of the significant contributions of the work of the Central Planning Agency relating to the collection, compilation and analysis of data required in input-output tables was the amassing of useful data that enabled the agency to determine the absolute levels in which some sector estimates of income have been underestimated?

Finally, Raymond W. Goldsmith of the NBER, says the following on the assessment of the accuracy of national income account estimates:

“ . . . numerous attempts have been made by one method or the other to get a quantitative expression of accuracy of the national account estimates, as well as of other similar statistical aggregates. This generally has not worked because these figures are not of the type where an answer can be given on the basis of probability theory.

“Even where we use sample data in national economic statistics — we don't do that much, as you know in national accounts — all that we can estimate is the sampling error. However, everyone who has worked with these figures knows that the sampling error will generally be quite small relative to the other errors that may affect the results of a sample survey, errors which may result from the way in which

the questions were formulated, from the inability of respondents to recall data, and from their disinclination to give correct answers.

“When we work, as we do in most of the national accounting data, from a mosaic of aggregate data of the most various kinds, it is almost impossible to make a quantitative estimate of error in any of the aggregates.

“You would first have to go back to each of these hundreds of little stones out of which the aggregate is built up. In some cases you could attach some estimate of error to the figures. But — No. 1, the limit would have to be fairly wide and, No. 2, you don't know how to combine the errors in the individual series.

“It is one of the advantages of this mosaic character that we hope that some of the errors are offsetting, but we don't have detailed knowledge of the extent to which this is the case.

“The only estimates of this type that have ever been made have been of an entirely subjective character. A number of people who worked on the figures put down their own guesses as to the degree of accuracy, and such individual guesses were then averaged. That undoubtedly is better than nothing since it is the people who make up the figures or who work with them who probably have the best judgment, but it is not in any way a scientific assessment of error.

“ . . . the best thing still would be to ask a number of people closely working with the figures and abide by their answers if anything like a consensus of opinion developed.

“ . . . You know that for most of these items we have a preliminary estimate and then as more of the basic material becomes available, revised estimates are made and these revisions are continued for several years until finally benchmark estimates are at hand.”