is least good in late 1963 and 1964. In these years prices are first lower, then higher, than predicted. This could be "explained" by saying that at this time the appropriate lag increases, but such an explanation does not give much guide to the actual factors at work.

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POLICY IMPLICATIONS OF PHILIPPINE INFLATION

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POLICY IMPLICATIONS OF PHILIPPINE INFLATION

What are the policy implications of the Philippine inflation of 1962-64?

Two obvious alternative answers are:

(i)   There must be tighter monetary or fiscal restraint in the future, or

(ii)   Inflation of these dimensions does not really matter; in 1963-64 price stability was rightly   and successfully subordinated to growth.

I want to draw morals somewhat different from either of these. I apologize that all I have to present is rather simple economics supported by rather simple statistics. The statistics may sometimes appear to point rather uncertainty to the economic conclusions, but that may be the best we can ask of statistics after all.

My main tendencies are:

(i)   To discredit one possible technique of achieving stability,

(ii)   To suggest that the conceptual framework of stabilization policy in the Philippines should be different not only from that in the industrialized economies but also from that in the genuinely undeveloped.

* The problem of controlling inflation is merely the reverse side of the problem of raising the current flow of income and promoting growth.

With perfect substitutability among all factors of production and a perfect market mechanism for price-setting, there will be no price inflation until all available factors have been fully employed.

The market mechanism for price-setting is not always perfect however. And substitution between factors is not perfect.

The last assertion implies that there may be such things as "bottle-necks," or to put it another way that there may at any juncture in time be excess capacity (an excess supply of one factor) which we cannot use because of a shortage of another factor.

Putting existing capacity to fullest use may therefore involve structural adjustment either of demand or of factor supply - or else conceivably adjustment of techniques. Under this general head we may include measures for diverting resources to power and other utilities or to agricultural extension, and measures for devaluing currency in order to divert resources to export industries.

The basic policy problem of economic growth is the problem of appropriate structural adjustment of demand and factor supply in order to relieve shortages and employ otherwise unused capacity.

These adjustments may be made over either the short- or the long-term: a temporary sales tax, say, to suppress demand for some consumer good or else a major investment in electricity or water. We may represent them as attempts either to increase the growth (or current output) consistent with a given rate of inflation or to reduce the inflation necessitated by a given rate of growth.

One of the things I hoped to achieve by a study of the economic events of 1962-65 in the Philippines was to throw some light, largely for my own benefit, on the business of short-term "stabilization" in an "unlimited labour", and largely agrarian economy.

My own prejudice in this matter dictated an aggregative approach, on rather simple Keynesian lines, in which one would try to sort out such autonomous components in aggregate demand as are not under fiscal control, to form various hypotheses about the appropriate fiscal response, and to see which if any of these experience supported. I concluded, however, that there was little to be gained from this approach for such reasons as:

(i)   the lack of ex-ante estimates of private investment;

(ii)   the extreme inadequacy of ex-post estimates of invest-
         ment in the national accounts;

(iii)   the operational meaninglessness of the national budget
         (Appropriations & Public Works Acts) as passed by
         Congress.

(iv)   the disparity between government disbursements and
         the accrual of government obligations, and the
         uncertainty about the effective value of either;

(v)   the presumed unreliability of import and export
         statistics and therefore of other elements in the
         balance of payments.

None of these difficulties is necessarily insuperable but
together they form an effective barrage of obstacles to
setting up a coherent framework for fiscal policy.

A second approach to stabilization is to use the
money supply, with or without related measures of liquidity,
as the main indicator and to regulate the instruments of
control (fiscal as well as monetary) by the readings they
show on this particular dial. This subject is often discussed
as if there were a universally-known simple formula relating
money-supply movements to those of prices or of prices and
real output. The Central Bank Reports give such importance
to the changes in money supply that the innocent reader might
suppose that the authors knew what the precise importance of
these changes was. Similarly, the Five-Year Plan for the
Philippines contained in the IBRD Mission's Report of 1962*
supposes that some simple quantitative relations between the
movements of money supply and those of real output will
ensure sufficiently stable prices; and on this assumption
(requiring for some unexplained reason that the rate of rise
of money supply should be 1.17 times that of real output) the
Mission's estimates of the new taxation necessary to finance
the program appear to be based.

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* Appendix II to the State of the Nation Message of President
  Diosdado Macapagal. January 22, 1962. Economic Growth in
  the Philippines. A preliminary report prepared by the staff
  of the IBRD. Published in Five-Year Socio-Economic Program
  of the Philippines. Supplement to January 1962 issue of
  Dept. of Foreign Affairs Review, Vol. 4, No. 1, p. 69.

But the reasoning as summarily presented is intuitive rather than appealing to any explicit theory with quantitative implications.

If there is sufficient constancy in the "velocity" of money (either average or marginal) then it may conceivably be possible to use the level of the money supply as a price control indicator. I have attempted to perform one possible type of regression for finding the parameter, (see Appendix) but the inadequacies of the Philippine national accounts make the result of any such procedure dubious.

The "autonomous-expenditure" approach to the study and control of inflation and the "money-supply" approach are alike in that (i) they are both aggregative; and that (ii) they both concentrate attention on the demand side. What I want to suggest is that in the Philippines more attention should be paid to adjustments in supply than either of these two approaches would seem to require, and (what is in practice implied by the foregoing) that the economy should be treated by sectors rather than aggregatively.

To see how the maintenance of price stability by measures using aggregate demand alone may be inefficient, we may consider an imaginary economy in which there are only two consumer products - one A, with its inputs domestic and price-flexible with a low price- and income-elasticity of domestic demand, and with inelastic supply over periods of several years; and another, S, with a high import component and sticky prices, with a high income-elasticity of demand, and with supply (because of excess capacity) infinitely elastic at the margin. Calamity reduces supplies of A, so raising its price and the consumer-price index. There is a negligible shift of consumer demand from A to S as a result of the rise in A's price. In order to restore prices to their previous levels, monetary or fiscal measures are applied to restrain aggregate consumer-demand. The effect of this, however, falls largely on demand for S. The prices of S are sticky, which is to say that supply is highly price-elastic. Hence, the price of S falls very little while its output falls significantly. The price of A is also little affected since the demand for A in money terms is not greatly reduced. The restrictive measures thus reduce output rather than prices.

It is, of course, at the heart of Keynesian stabilization policy to recognize precisely this: that measures of general expansion or contraction of demand affect a varying mix of prices and real output. The simplification commonly taught suggests that there is some critical "full employment" level of demand below which real output is mainly affected and above which the main burden of any change is on prices. And, indeed, it does seem realistic in industrialized countries to associate this crucial level with some approach to actual full employment of the labour force - the degree of approach depending on the structural maladjustment between labour, other factors and final demand.

For the archetypal underdeveloped country, any use of an employment index to show whether the crucial level of demand has been reached is commonly treated as out of the question for several reasons. First, it is practically impossible because unemployment statistics are inadequate and indeed uncertain in their meaning. Then, it is considered inappropriate also because the unemployment that exists at the critical level of aggregate demand will be due not mainly to structural maladjustment but rather to sheer shortage of the capital needed to employ the labour force at the level of productivity achieved in the modern sector. Similarly, the approach is considered inappropriate because labour will still be "unlimited" in supply when real output approaches its short-run maximum, so that it will be a shortage of other factors (not as in industrialized economies of labour) that will be mainly responsible for the onset of inflation. The archetypal underdeveloped country will furthermore have a high marginal income-propensity to consume food; food will form a very large part of the consumer-budget; and food supplies will be strictly limited in the short-run, while food demand will be inelastic. Hence, movements up or down of aggregate income in money terms are likely to entail significant movements up or down in food prices and therefore significant movements in the cost-of-living index. Thus the Keynesian concept of a critical level of demand below which price movements are negligible and output movements large will itself be irrelevant. If we want to stabilize prices we manipulate aggregate demand so as to produce the required result in the price level. And real output, which will consist of food, exports, services (including construction) and a small import-competing sector of manufactures, will look after itself in the short-run. Food

supplies will be inflexible; the demand for exports will be
externally determined; manufacturing will be protected and
will use all of its limited capacity; and services will run
at a level set by the other sectors. Thus short-run stabili-
zation is easy, provided we have a battery of general fiscal
and monetary measures and can use them flexibly. The import-
ant problems are long-run: increasing efficiency in food and
exports, and raising manufacturing capacity.

This picture of the stabilization problem in the
archetypal underdeveloped country is logically coherent. I
question, however, whether it fits the Philippine economy in
the 1960's. Could it be that the model of the A-S economy
gives a truer picture and that there really is a risk that
price stabilization policy will be applied in such a way as
seriously to restrict real output? In certain important
respects, the Philippines probably differs from the under-
developed archetype:

> The manufacturing, construction, transport and
> communication sector, even as estimated
> (and almost certainly underestimated) by
> the national accounts, contributes as
> much as a quarter to the value of total
> output.

> Marginal consumer expenditure probably has a
> significant content of inputs of domestic
> non-agricultural origin.

> Capacity in a number of manufacturing industries
> has been by no means fully used during the
> early 1960's.

Furthermore, there is one respect in which the Philippines
since 1962 (and more so since early this year) has differed
from many underdeveloped countries, and that is in its
virtual freedom from exchange controls or (grain excepted)
from import controls.

Thus it is broadly true to say that Philippine firms
as in early 1966:

Have between them substantial unused industrial
capacity -- like those in highly industrialized
economies;

Face "unlimited" supplies of foreign exchange --
like those in highly industrialized economies;

Face "unlimited" supplies of labour -- like those
in undeveloped economies.

The situation of the Philippines ought to be one peculiarly
dampening therefore to inflationary tendencies as long as
current foreign exchange policy can be maintained. Domestic
prices are unlikely to be very sensitive to small movements
of aggregate demand or money supply.

The Money Supply Relation

It would seem, however, that views on stabilization
policy clean contrary to this may be influential in the
Philippines.

The members of a certain important government agency
informed me of a statistical relationship which, on the face
of it, has considerable importance for stabilization policy.
The relationship is a simple linear one between the Manila
consumer price index and the Philippines money supply of
three months earlier, the coefficient of determination being
over 0.9. This relationship (which I call the PIA relation)
I confirmed by correlating the Manila consumer price index
for the last month of every quarter from September 1955 to
December 1965 with an index of the Philippine money supply
of three months earlier (applying to each series a rough
set of seasonal adjustments). The r^2 value duly turned out
to be 0.94, and the regression coefficient (with both indices
based on 1955 = 100) to be 0.300. It is tempting to conclude
from this that consumer price inflation in the Philippines
can be controlled by a sufficiently precise control of the
money supply.

The equation is:

$$P_{c(t)(e)} = K + 0.300 \cdot M_{(t-\frac{10}{48})}$$

where t measures time in years
P_c is the Manila consumer
price index seasonally
adjusted
M is the money-supply

Six pieces of statistical evidence can be invoked to justify caution over the drawing of any practical conclusion from the correlation:

(i) A linear regression relating the same consumer price index figures over the same period (September 1955 to December 1965) as dependent variable to time as independent variable gave an r^2 of 0.90.

(ii) Extension of the linear regression of the consumer price index against money supply (on the same basis as above) so that it ran from March 1950 to December 1965 reduced the closeness of the fit, giving an r^2 of 0.84 and altering the regression coefficient to 0.236. Thus it appears that the fit is not nearly so good when we include the period from 1950 to 1954 - a time of generally falling prices. The evidence that the price-money relation is a time - trend accumulates.

(iii) Correlation of first differences of the original money supply and price series (by last months of quarters with one quarter lag of money supply and running from September 1955 to December 1965) gave an r^2 of only 0.057.

(iv) Linear correlation of the same consumer price series, as dependent variable, against the whole-sale price index of imported products in Manila (unlagged), as independent variable, from June 1950 to June 1965 gave an r^2 of 0.86; while regression of the consumer price series against the seasonally adjusted money supply for the same period (lagged by three months, i.e., the same regression as in (ii) above, but over a slightly shorter time) gave an r^2 of only 0.82. It is just possible that the wholesale price index of imports could be affected by changes in the domestic money supply in the exchange control period (for example by an increase in illicit payments for foreign exchange when domestic demand is high), but it is unlikely that such effects would be much reflected in the official wholesale import price index, and for

practical purposes we can probably treat the
import price index/representing/factor indepen-
dent of money supply and one apparently providing
a more accurate predictor of consumer prices over
the 15-16 years period.

(v)   Multiple linear regression of the consumer price
series as dependent variable against money supply
(lagged by 3 months) and the wholesale import
price index (unlagged) gave the following equation:

$$P_{c(t)(e)} = 61.25 + 0.075\ M_{(t-\frac{10}{48})} + 0.306\ ^{w}Pm(t)$$

> where t measures time in years
> P_c is the seasonally adjusted
> Manila consumer price index
> M is the money supply
>
> ^{w}Pm is the Manila wholesale
> price index of imported
> commodities

The period covered by P_c was June 1950 to June 1965
and the r^2 was 0.87. All variables are measured as
indices with 1955 (or June 1955) = 100.

If this statistical relation could be regarded as
causal (and there is at least as good a case for
doing so as for regarding a two-dimensional regres-
sion of consumer prices against money supply as causal),
it would imply that only immense changes in money supply
could noticeably affect consumer prices.

(vi)   None of the regression equations so far referred to
provides a good fit for the quarters from June 1963
to December 1964, the period of those considered for
which Manila consumer price inflation was at its
fastest. In the latter half of 1964 particularly,
the consumer price index figures are considerably
higher than any of the foregoing relationships would
predict.

Clearly any simple causal relation postulated between money supply and consumer prices must be treated with profound scepticism. Other variables, apparently undetermined by money supply, can be found which correlate equally well or better; first differences give a poor fit; and the behaviour of prices in the period of most crucial interest is left unexplained.

Now one could accept the evidence for a short-term relation between money supply and prices for either of two reasons: because this was the kind of relationship one expected on general theoretical grounds; or because one thought that such a close correlation, quarter-by-quarter over ten or eleven years, merited explanation. The latter ground has been undermined. What of the former?

I do not think that any respectable version of the quantity theory supposes a close *marginal* relation between money-supply and *prices*.

"Quantity theory" may refer to the Cambridge-Fisher money equation which is a definitional identity like Newton's first law. Or it can refer to one of the empirical hypotheses of the sort used by Friedman. In the latter case, the theory carries the implication that the key parameter, velocity, is constant. Unless there were some view taken on the behaviour of the parameter, the hypotheses would not be empirically falsifiable.

The Cambridge-Fisher equation has no empirical implications. If one used it and assumed that real supplies and money velocity are constant, then one would expect to find the price-level *proportional* to money supply:

$$\frac{\Delta P}{P} = \frac{\Delta M}{M}$$

This is not supposed, and is in fact excluded, by the regression equation,

$$P_{c(t)(e)} = K + 0.300 \, M_{(t-\frac{10}{48})}$$

as derived above.

The simplified "constant marginal velocity" model used in the 1963 Friedman-Meiselman article[*] and apparently well fitted to the United States figures, uses a regression equation of the form

$$Y = a + b x$$

where the b is the marginal velocity and the X is money supply, but the Y is consumption (used as a surrogate for income) in money terms or in real terms - not the price level. Friedman and Meiselman implicitly assume that real output as well as prices may respond to monetary expansion or contraction. This, of course, does not in itself mean that the money-supply relation examined above is invalid. There is probably, after all, as little a priori ground for accepting the Friedman-Meiselman equation as for accepting the PIA relation. It merely means that the Friedman-Meiselman empirical results cannot be used in support of the PIA relation.

The foregoing is not the whole case against using money supply as a single short-term indicator for purposes of price control. Even if the relation with prices were close, it would not follow that manipulation of prices by manipulating the money supply would be easy. But the relation itself (which would appear to demand an "undeveloped" framework for dealing with stabilization problems of the Philippine economy) is emphatically not proven.

I examine below whether money supply provides a good short-term indicator for price movements of key groups of commodities.

The Inflation Dissected

In this study, I use the Manila consumer price index as the measure of the price level. It extends back much farther than the index for the regions outside Manila but moves very largely in line with that index since 1957 when the latter index begins. Its movements are also not dissimilar to those of the Manila retail price index. To save argument, I shall say that by "inflation" I mean here simply rises in the Manila consumer price index, whether or not its weights are now, or ever have been, representative of what anyone actually buys.

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* M. Friedman and D. Meiselman in E. Cary Brown et al, Stabili- zation Policies, Eaglewood Cliffs, Prentice-Hall, 1963.

What is the phenomenon to be explained? By the Manila index, inflation is negligible from August 1960 until February 1962 or perhaps even until July-August 1962 (rises of 2.0 and 3.1 points respectively). The all-items index for Manila from December to December rises 7.7 points over 1962,
9.7 points over 1963,
11.7 points over 1964,
-0.4 points over 1965.

This gives a total of
29.1 points from December 1961 to December 1964, a rise of roughly 25% in 3 years.

The respective contributions of the five main divisions of the index to this rise are given hereunder:

Rises in Manila C.p.i.: December 1961-December 1964
(Indices on bases: 1955 = 100)

	No. pts. rise	Weight	Contribution	Contribution
Food	49.5	0.4750	23.5	80.8
Clothing	13.1	0.0832	1.1	3.7
House Rent	7.9	0.0781	0.6	2.1
Fuel, lights & water	20.5	0.0523	1.1	-3.7
Miscellaneous	8.9	0.3114	2.8	9.5
All Items	29.1	1.0000	29.1	99.8

Thus the rise in the index is very largely attributable to the rise in food prices. Of the other items, only utilities and possibly clothing rise enough to deserve mention.

Apart from changes in demand and in actual physical supplies, there are three cost-type factors possibly affecting prices during the Macapagal administration period:

Devaluation, bringing a rise in legal import prices.

The Minimum Wage Law of 1964, raising legal minimum
wages by two pesos except in domestic service
and very small-scale industry.

Final (purported) implementation, in 1964 and in
1962-3 respectively, of the Retail Trade
Nationalization Law of 1954 and the Rice and
Corn Nationalization Law of 1960.

The date of effectivity of the Minimum Wage Law falls right
at the end of the period of greatest inflation, but its
passage may just possibly have influenced wages in advance.

There are also certain price rises in important mono-
polies that do not appear to have been determined by any surge
in demand over 1962-64: the Nawasa 50% rise in 1964, forced
upon the Authority by the World Bank; and the Meralco 8-9%
rate rise between February and August 1965. I understand that
the Meralco rise had been contemplated as early as 1961 but
postponed until after the transfer of ownership of the company
which took place in politically ticklish circumstances. The
Nawasa rise alone accounts for half a point of the 29.1 points
rise over the three worst years.

The index of directly imported components of the
Manila consumer price basket rose by 52.1 points (about 38%)
from the 1961 to 1964 average. Given the total weighting of
the imported components, this would account for about 4.3
points of the 29.1. Non-food-non-clothing imported components
alone (on the assumption that they also rose by 52.1 points)
would account for 1.4 points rise in the all-items index.

In addition, there must be a number of domestically
manufactured or finished goods entering into the index with
a high import component, and these were probably affected
by devaluation. Using the Manila wholesale price index as
an index of the effective dollar-peso exchange rate, I
regressed this as independent variable against the clothing
component of the Manila consumer price index as dependent
and got the following results.

TABLE I

Linear regressions of Manila consumer price
index of clothing against Manila wholesale
price index of imported commodities --
last months of quarters, unlagged

Period

March 1950	b	$= 0.55$
to		
June 1965	r^2	$= 0.78$
March 1952	b	$= 0.87$
to		
December 1958	r^2	$= 0.93$
March 1959	b	$= 0.49$
to		
June 1965	r^2	$= 0.94$ (0.09)

Figure in brackets is r^2 for first differences.

Though the first difference r^2 is very low, and one therefore
would not want to use the regression coefficients causally
without further investigation, the strong dependence of
clothing prices on effective exchange rate is suggested by
the fact that the index is almost level from June 1960 to
December 1965, apart from a large jump of 10.6 points
between November 1961 and March 1962 and a small jump of
3.4 points between November and December 1964, the latter
readily attributed to impending wage rises. This interpre-
tation of the rises as due to "cost" factors is fortified by
the reputed "distress" in textiles.

Referring back to the distribution of the consumer
price rise between December 1961 and December 1964, we may
roughly attribute to institutional factors (in effect
government decisions).

Virtually, the whole of the rise in "clothing"
(say 10 points out of 13.1) - exchange rate
and minimum wage rate changes

Half the rise in "fuel-light-water"
(10.5 points out of 20.5) - the Nawasa
rate rise

Nearly a sixth of the rise in "miscellaneous"
(1.4 points out of 8.9) - exchange rate
change

(The first and third of these are admittedly speculative.)

This would mean that food price inflation and institutional
factors between them explain about 25.4 points of the 29.1
points rise in the all-items index over the three years,
leaving, say, 3.7 points to other factors in the non-food
area.   In the circumstances non-food price rises are
remarkably low.   In effect, the inflation was one of food
prices complicated by institutional changes.

      The very small price increases in the non-food
components apart from increases directly attributable to
institutional cost factors - suggests that a "Keynesian"
situation prevails in the non-agricultural sector.   The
three years concerned saw a rise of over 25% in the money
supply and probably (see below) considerable rises in manu-
facturing and construction output.   The Manila rent index
(for what it is worth) rose only 8.7 points (c. 8.3%) over
the three years in spite of the fact that the construction
boom went with substantial rises in the prices of construction
materials.

      "Unlimited" labour and "unlimited" foreign exchange
appear to be strong stabilizing forces except in the case of
food.

      Even within the food group, the supply of certain
items may be relatively responsive.   Vegetables are a case
in point presumably because they compete with cereals for
land but tend to be more labour intensive and to give a
higher value per hectare.   The vegetables index follows an
upward trend from 1961 to 1965, but very unevenly, and its
average for 1965 is only about 5% higher than that for 1960.

      The "eggs and milk" index largely covers imported
milk.   Consequently, it rises considerably to the second half
of 1962 but very little thereafter.

The "fats and oils" and "fruits" items show appreci-
able inflation, but they contribute a very small part of the
total index.

Clearly the important foods in the inflationary trend
of the index are rice, meat and fish. Rice comprises 75% of
the cereal basket in the index and accounts for almost the
whole rise in cereals (since pan de sal, so-called American
so-called bread, and imported flour were stable). It con-
tributes about 11% of the all-items index. The rise in the
price of Macan 2nd class in Manila from the 1961 average to
the 1965 average was from ₱1.10 to ₱1.34, or 22%. From
December 1961 to December 1965, it was ₱0.95 to ₱1.30, or 37%.

The price rises of cereals, meat and fish between
them contributed 13.2 points or 45.4% of the 29.1 points
price rise from December 1961 to December 1964. Thus what-
ever explains the rises in rice, meat and fish goes a long
way toward explaining the inflation that the index records.

It would be convenient to investigate demand and
supply factors for all three items. Unfortunately, however,
the domestic output figures for fish and for certain types of
meat appear to be so inadequate as to make direct supply
investigations pointless. For rice, however, there are
domestic and import supply figures which are widely used and
have a prima facie case for moderate reliability. At all
events, the main probable source of error, overstatement or
understatement by farmers, seems likely to react in a fairly
constant way on the over-all figure so that there will pro-
bably be a close direct relation between the true figure and
the estimate.

Consequently, I tried to investigate the extent to
which rice prices could be explained by a linear relation
with the ratio of supply to requirements:

(i)   first, on the naive assumption, apparently used by
        the authorities, that equilibrium requirements per
        head of rice-eating population will be constant
        from year to year;

(ii)   then, on the more subtle, if implausible, assumption
        that while equilibrium requirements are not neces-

sarily constant per head of rice-eating population,
the fact that they are believed to be constant will
act as a determining factor on import policy and give
rise to certain expectations of price rises whenever
the harvest per head falls below a certain level;
that rice imports (to which there are political, and
often fiscal, objections) will be thrown on the market
in such a way as to dampen, and not to negate or
reverse, the price trends officially expected from
the harvest figures.

These two assumptions imply respectively that there will be
positive relations between:

(i)   the rice price index and the ratio of total population
to the sum of rice output and rice imports over an
appropriate period;

(ii)   the rice price index and the ratio of total population
to rice output over an appropriate period.

I assumed, as the authorities do, that the ratio of rice-eating
population to total population is constant. For the purpose of
these calculations, I used the Manila cereals index as a
surrogate for the rice price index. The first differences of
the annual figures of the cereals price index and the Manila
price of Macan 2nd class over 1950-65 have an r^2 of 0.86, and
the coefficient of regression of the former on the latter is
0.74.

Two problems arise at this point:

(i)   that of defining equilibrium in rice prices;

(ii)   that of delimiting appropriate periods.

I dealt with the former problem by using three alter-
native assumptions:

(a)   that equilibrium implied a constant index, i.e.,
constant prices;

(b)   that equilibrium implied a constant ratio between
the index of one period and that of the preceding
period; i.e., a constant rate of growth in prices;

(c)   that equilibrium implied a constant ratio of the
cereals index of one period to the all-items index
of the preceding period; i.e., constant relative
prices.

To the second problem - of appropriate periods - there
is no ideal solution. I worked with annual figures, if for no
other reason, because of the availability of supply data. The
simplifying assumption made was that the prices of a calendar
year are likely to be affected by:

R_p, the quantity of rice produced in the "crop year"
ending in June of the calendar year;

R_i, the quantity of rice imported in the calendar
year itself.

The justification for this very convenient assumption is that
the main crop of each crop year begins to come out of the
market shortly before the beginning of the calendar year; while
the rice imports of any year tend to be concentrated about the
third quarter, and information from the R.C.A. suggests that
it is normal for them to come onto the market well before the
end of a calendar year. (The carry-over of about a million
cavans of imported rice, roughly 10% of the year's importa-
tion, from 1965 to 1966, was apparently exceptional.) The
best choice for the "price year" might be December to November,
rather than January to December, but no more than about 2%
difference is made in any year to the annual average price by
shifting the period. Hence, I have used the calendar year.

The results of the six simple linear regressions
foreshadowed above are given below. The first figure in each
box is the regression coefficient (b) and the second figure,
the coefficient of determination (r^2). The cereal price
measure is the dependent variable in every case; that the
population-to-rice measure is the independent variable.

π is population of the Philippines on June 30th
of year t

Rp   is the rice-output in crop-year numbered t (i.e., year ending June 30th in year t)

Ri   is rice-importation in calendar year t

Pcer (a) is the Manila cereal price index averaged for calendar year t

Pcer (b) is the Pcer (a) of year t divided by that of year (t-1)

Pcer (c) is the Pcer (a) of year t divided by the all-items Manila consumer price index of year (t-1).

TABLE 2

Results of linear regressions between
cereal prices and quotients expressing
the relation of rice requirements to
rice supply

Dependent Variable	Independent Variable		
	(i) $\dfrac{TT}{Rp + Ri}$	(ii) $\dfrac{TT}{Rp}$	
Pcer (a)	$b = 0.92$ $r^2 = 0.04$	$b = 3.07$ $r^2 = 0.73$	(1.96) (0.78)
Pcer (b)	$b = 0.32$ $r^2 = 0.01$	$b = 1.12$ $r^2 = 0.29$	
Pcer (c)	$b = 0.73$ $r^2 = 0.10$	$b = 1.635$ $r^2 = 0.80$	

Figures in brackets are the b and r^2 respectively for the first differences of the relevant series.

Multiple regression of the consumer price index against $\dfrac{TT}{Rp + Ri}$ for the year, the Manila wholesale price index of imports

(unlagged) and the money supply (lagged by three months), all
as indices (base 1955=100 or June 1955=100) gave $\frac{TT}{Rp+Ri}$ a
regression coefficient of 0.19 and a partial r^2
of 0.014. Period was June 1950 to June 1965 by quarters.

On the face of it, this is a remarkable result and
one quite at variance with the expectations of the authorities
(the Inter-Agency Committee).

It suggests that rice price movements are more readily
explained by the amount of rice domestically produced per head
than by total rice supplies per head. 1965 is in fact the
year for which price behaviour seems most at variance with
apparent supply. Apparent rice supplies per head (even
deducting the 1 million cavan carry-over into 1966) were far
greater than in any year of the previous 15 years and about
10% greater than in 1962. Yet the price average for the year
fell by only 3.1 points (e. 2%) on the cereals index or 1
centavo (less than 1%) on the Macan 2nd class price from 1964.
The cereals index was 35.8 points (c. 30%) higher in 1965
than in 1962 and the Macan 2nd class price 37 centavos (c. 37%)
higher. Considerable improvement in the fit between prices
and apparent supplies per head is achieved by eliminating
1961 and 1963-65; four of the five years of highest imports.

Several possible explanations may be put forward:

(i) One explanation is that the assumption that
prompted the use of $\frac{TT}{Rp}$ as independent variable is correct,
that is to say, that the result comes about because the
authorities act on a mistaken a priori view of the way prices
will move in the absence of imports, and then import enough
to effect, on valid empirical rules of thumb, a result equi-
valent to the dampening, but not the negation or reversal,
of the supposed trend. I present this explanation for what
it is worth. I do not find it convincing.

(ii) A second possible explanation is that no
imports, or negligible imports, were in fact made. Recent
discoveries of immense frauds over Indonesian rice imports
make it necessary to enumerate this possibility, and there
have been suspicions voiced in the press in 1966 that not
all the rice imports supposed to have been made in 1965 were
in fact made. The RCA has published no annual report since
that for the year 1962-63. The Bureau of Commerce fails to

record almost all of the supposed rice imports for 1963
because they were made through the Armed Forces, and, as
far as I know, it has not yet published figures for 1965,
the year for which price behaviour is most bizarre. Despite
all these grounds for suspicion, however, we should expect
more direct evidence than exists of immense peculation in
funds disbursed for rice imports. In short, this explanation
is not convincing.

(iii) A third possible explanation is that private
hoarding greatly increased over the years 1963-65 in expect-
ation of continued price rises, and that additions to hoarded
stocks happened to correspond roughly either (a) to the
quantities imported or (b) to the excess of total supplies
over consumption requirements (by hypothesis fixed per
capita). Additions to stocks might take place in the hands
of traders or consumers. But the following figures show
the implications of such assumptions:

		Quantity m. Cavans	% of Inter-Agency Estimates of 1965 Requirements
(1)	Imports or rice 1961-1965	23.6	47
(2)	Excess of apparent supplies of rice over Inter-Agency estimate of requirements, 1961-1965	12.4	25
(3)	=(2)-0.6 m. cavans per year	9.4	19

If stocks were increased by the amount of net imports over the
last five years, they would have increased by nearly half a
year's estimated consumption requirements. If they were
increased by the excess of apparent supply over Inter-Agency
requirement estimates, they would increase by about 25% of a
year's requirements. Now since the Inter-Agency estimates
would indicate an excess of apparent supplies over con-
sumption requirements in eleven out of the last thirteen

years, it would seem that the estimates of requirements (if the term is supposed to have any bearing on price equilibrium) are too low. But even allowing that the Inter-Agency estimates each year may be about 0.6 million cavans (or 1.2% of 1965 requirements) too low, the figure that apparent supplies over 1954-60, with appropriate upward adjustment for population growth, would suggest, this only reduces the net addition to stocks over 1961-65 required to sustain the hypothesis from 25% to 19% of 1965 "requirements". This net addition to stocks, furthermore, would presumably be the amount required to explain why prices were stable. One needs to posit an even greater addition to explain why they rose as markedly as they did over 1963 and 1964 and why they stayed high in 1965.

An increase in private stocks might thus be a part of the explanation. Lagging production and the uncertainty of imports, together with the fact of rising prices, would be favorable to speculative hoarding by traders or consumers, but the magnitudes that need to be posited to make this the principal explanation are unbelievably great.

(iv) A further possible explanation is that the wholesale rice trade is organized as a de facto monopoly which can set commercial rice prices (those measured by the index) at will. I have heard it asserted that the rice trade acts like a monopoly but would not pretend to know the evidence in favour of this proposition. However, if true and a candidate for explaining the rice price inflation, this creates other difficulties. If the demand function per head remains constant while supply per head increases, then raising the price presumably involves removing some of the supply from the market, reducing the effective supply per consumer by more than the amount by which production and importation would tend to make it increase. (In fact, even if the demand function had an elasticity of zero, the trading monopoly would at least have to reduce effective supply per consumer by as much as other factors would have tended to make it increase.) This involves either storing it - an explanation subject to the difficulties already outlined - or destroying it. Massive additions to stocks would presumably involve considerable cost for traders.

Widespread deliberate destruction of rice would presumably
have attracted some attention and public comment. Manipula-
tion of the market might explain why one year's prices were
out of line with expectations. They could hardly explain
why five years should run more or less progressively out of
line.

(v) A fifth possible explanation is that illegal
exports increased as imports increased. Again, the magnitudes
involved make the explanation implausible. Rice is not an
eminently smuggleable commodity and I believe it has seldom
been publicized as such even though the illegal exporting of
a number of goods is known to have been common before decontrol.
Furthermore, domestic Philippine rice prices have tended to
increase as imports have increased, and this cannot have been
conducive to comparable increases in exports. Nevertheless,
it is just possible that coincidental increases in the price
of rice in Indonesia relative to other commodities there may
have provided an incentive.

(vi) RCA subsidized sales of imported rice may have
neutralized the effect of the imports on commercial prices
(the prices recorded in the Central Bank's indices and the
RCA's tables). Undoubtedly, the effect of subsidizing the
prices of the imports is to keep commercial prices higher
than they would be if the imports were thrown into a single
free market. But the assumptions needed to make this is a
total explanation are heroic. Compare situation I and
situation II. In I, all imports are sold in a free market.
In II, sales are taken out of the free market and sold with
subsidy at 75% of the free market price that would obtain
in situation I. The subsidization may have an income effect
and a substitution effect on the buyers who are thereby
removed from the free market. If they (being poorer than
the sample of consumers on which the Manila consumer price
index was based) had previously spent 20% of their income
on rice, the effect of the 25% subsidy would be to increase
their real income (reckoned at pre-subsidy prices and con-
sumption levels) by 5%. If their marginal income propensity
to consume rice were 60% (a figure suggested by Dr. Mears
as roughly representative for rural people in rice-eating
countries and therefore probably an extreme upper limit for

RCA customers) they would make extra demands on the free
market to the value of 3% of their pre-subsidy income or 15%
of their pre-subsidy rice consumption. Between them they
accounted in situation I by hypothesis for 20% of the rice
market. (This again is an extreme upper limit approached
only in 1962.) Hence the effect of subsidization is to shift
the free market demand curve(at its situation - I equilibrium
point) 3% to the right, which would explain why situation II
would require 3% more rice in the market than situation I to
keep the same free-market price. But appealing to the income
effect of subsidization will not go far to solve the problem
on hand, which is to explain why the market can absorb the
20% addition (25% of the pre-import supply) without noticing
it. If the addition to the market were smaller, so propor-
tionately would be the percentage shift in the demand curve
that subsidization at 25% would suffice to explain.

What of the substitution effect of the subsidization?
If we were to explain a 20% shift in the demand curve from
situation I to situation II by the substitution effect of
subsidization alone, we should have to suppose something like
this: that all purchases of RCA rice would not have been
made at all at the situation I price. The purchasers would
in situation I have lived on camotes or cassava. If the
substitution effect is to explain 17 percentage points of a
20% shift in the free-market demand curve from situation I
to situation II (the other 3 points being explained by the
income effect), then 85% of the RCA rice purchased would
have to represent a substitute for other carbohydrate foods
- a substitute adopted purely because of the change in
relative prices. This, again I suggest, does not fit at all
with experience in the Philippines.

To sum up, none of the supply-side explanations -
(ii) to (vi) above - is convincing as the major explanation
for the empirical result. Of course, a combination of two
or more of them might serve, but in the absence of an
obvious candidate it seems more reasonable to look to the
demand side. The following table of the excess of apparent
supplies over Inter-Agency (constant per capita) estimates
of requirements strongly suggests that consumers' rice
requirements have not only exceeded Inter-Agency estimates

but, in spite of rising prices, have risen in the early sixties.

TABLE 3

Excess of Apparent Supplies of Rice over Inter-Agency (constant per consumer) Estimates

	Actual	3-Year Centered Moving Average
1953	1.02	--
1954	1.35	1.09
1955	0.91	0.83
1956	0.22	0.57
1957	0.57	0.39
1958	0.36	0.53
1959	0.66	0.32
1960	-0.05	0.75
1961	1.64	0.26
1962	-0.82	1.44
1963	3.48	1.40
1964	1.55	3.86
1965	6.55	--

(Subtracting the carry-over from 1965 into 1966 would make the last figure in each column 5.55 and 3.53, respectively.)

If the rice inflation is due primarily to demand factors, that is prima facie evidence that the same is true for fish and meat and fruits. This is no knock-down argument. The explanation is adopted because it is the one that provides the least difficulties and complexities. To adopt a supply-side explanation we should have not only to adopt one of those already eliminated in the case of rice, but also to suppose that the same or coincidental factors operated for fish, meat and fruits. To suppose that demand for all rose simultaneously offers no difficulties. The rise in import spending after 1962 supports it.

The crucial question then is whether the demand for food in money and real terms rose because of relatively great rises in real output in other sectors or merely because of relatively great rises in money income.

For the export sector the answer is mixed. The
Macapagal period saw ten-year or all-time record peso-prices
for practically all major exports (cordage being the only
exception). Sugar had its record year in 1963 and copra in
1965. Quantities of a number of important exports, however,
such as sugar, abaca and coconut oil, rose little. In other
cases, such as copra, in which a large rise is recorded, the
apparent change may be simply due to a reduction in unoffi-
cial exporting since decontrol. For what it is worth, how-
ever, the quantum index of exports shows a marked rise -
from 119.2 in 1961 (1955 = 100) to 170.7 in 1965. For the
purpose on hand, it is worth noting that the dollar value of
recorded visible exports f.o.b. rose from $499.5 million in
1961 to $742.0 million in 1964. If these really represented
the bulk of exports in all cases it would be easy to see how
peso proceeds might almost have doubled, even taking account
of partial decontrol before 1962 and the 20% exchange reten-
tion afterward. Even on liberal assumptions about copra
smuggling there would have been a large new injection of
peso-income after devaluation.

What about the non-agricultural sector producing for
the domestic market? If there was a surge in money purchasing-
power here, it would seem to have been a result of abnormally
inflated real output rather than merely of abnormally inflated
factor incomes in money terms. Otherwise, it is hard to see
why non-food consumer prices should have remained so stable.
The main institutional rises in costs in this sector to the
end of 1964 would not have represented rises in factor
rewards. Monthly wage-earnings in the Central Bank's
reporting non-agricultural establishments scarcely rise until
early 1964 and even the average for 1965 is only 16.1 points
(about 13%) above that for 1961. If these figures are
representative, non-agricultural wage-earnings trail well
behind the consumer price indices.

Furthermore, a variety of indicators suggest that the
sector that includes manufacturing, construction, transport and
communication underwent a considerable rise in real output in
1963 and 1964 and in some departments also in 1965.

Mr. Warren's estimates of industrial energy input*
suggest that power-using industry had in 1963 a larger
proportional rise in output than in any of the previous ten
years except 1957 and 1958, and the largest absolute rise
ever.   Then in 1964 Meralco sales of power to industrial
users in the Manila region rose more absolutely than, and
by roughly the same proportion as, in 1963 (over 14%).   The
increase fell to about 9% in 1965.   The increase in net new
registrations of motor vehicles was less in 1964 than in
1963 (9,000 as against 19,000, mainly because of a fall in
net new registrations of "trucks", since net new registrations
of "cars" increased at an only slightly reduced rate), but
the increase in net new registrations of all vehicles in 1965
(20,000) was greater than in 1963 and that of "trucks" nearly
as great as in 1963.

Finally, construction appears to have enjoyed an
unremitting boom from 1963, if the Manila permit valuation
figures (which are constant-price figures) are representative.
These figures show a regular two-year cycle.   Every election
year from 1951 shows a rise in both non-residential and total
construction permits; and with two exceptions every non-
election year from 1950 shows a fall.   Those two exceptions
are 1956 and 1964.   There is a Magsaysay boom and there is a
Macapagal boom.   To judge by the figures, the arithmetic rate
of rise of non-residential construction was higher in 1965
than in the previous two years.   Non-residential construction
on this index was more than twice as high in 1965 as in 1960.

If manufacturing and construction were growing
unusually fast, it is likely that repercussions were felt in
other sectors, such as transport and communication and trade.
The arithmetic growth of total registrations of trucks - a
peak in 1963 and almost as great in 1965, and greater in
1964 and 1962 than in any earlier year of the last eleven
except 1957 - support this view.

It seems that the devaluation, combined with the
expansionary policies of late 1962 and 1963, led to a marked

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* J.C. Warren, "Energy and Economic Advance".   Philippine
  Economic Journal, 1964, 3, No. 1, pp. 78 ff.

non-agricultural boom whose effects were only gradually dissipated by restrictive measures in 1964 and 1965.

It is worth stressing again that this boom took place with neglible inflation of consumer prices directly or indirectly attributable to demand, except in the case of food.

NOTE: During the seminar discussion on this paper, Dr. Hooley and Dr. Castro suggested that the rise in rural money income attributable to the boom in peso export prices might account for a large part of the shift in the demand curve for rice. That this may be a complete explanation is suggested by the following purely illustrative figures. Suppose that the changes in the peso prices of exports had raised rural incomes per head in current prices by 10% from 1960 to 1965. Then, if the marginal income-propensity to demand rice were 50% in rice-eating rural areas (which might cover 80% of the population of all rural areas), these money-income changes would push the demand curve for rice to the right by an amount of rice equal to 4% of rural income or at least 2% of total national income. Since the value of rice consumed would not exceed 10% of national income, such a process could result in a rightward shift in the per capita demand curve for rice by an amount equal to 20% of previous consumption. The rice imports of 1965 (minus carry-over into 1966) are equal to somewhat less than 20% of the apparent supplies (equal to output as it happens) of 1960 inflated by the intervening rate of growth of population. Thus, if these illustrative figures do not exaggerate the effect of inflated export prices on the demand side of the rice market, the export boom alone (without any urban domestic boom) might be sufficient to explain the divergence of supply and price figures in the early 1960's from expected patterns. Thus it is conceivably possible that the non-agricultural boom had very little effect on rice prices. If, as I understand

a **study** on Calcutta found, <u>urban</u> marginal income propensity to consume rice is of the order of 10-15%, while that of rural people is of the order of 50%, a rise of 35% <u>per capita</u> in urban money-incomes will have much less effect on rice demand than a rise of 10% <u>per capita</u> in rural money-incomes. ("Rural" and "agricultural" are not of course identical, but a conveniently large part of rural secondary industry is primary-product-based and export-oriented.) The PSSH could presumably be used cross-sectionally to confirm or correct these guesses.

Before moving to the implications of this I shall introduce one further set of empirical results. Rice, meat and fish prices were separately taken as independent variables seasonally adjusted by months from 1960 to 1965. Each was regressed against money supply and time, separately and together. For the multiple regression a lag of the order of three months was used. For the simple regressions against money various lags of that order were used successively.

The question asked was whether the price movements could be best explained as month-to-month responses to money supply movements or as the result of longer-term trends in demand.

The results are as follows:

TABLE 4

(a) Multiple Linear Regressions

Seasonally Adjusted Rice Prices (Macan 2nd Class
in Manila)   and
Seasonally Adjusted Manila Meat and Fish Price
Indices Against Money Supply and Time by Months,
January 1960 to December 1965

Dependent Variable	Independent Variables			
(Y)	Money Supply Index (M) (June 1955=100) End of Month	Time (T) in Months	$r^2_{Y/MT}$	Lag for M (mos)
Rice price in cvos per ganta	b = 0.16 $r^2_{Y/M.T} = 0.03$	c = 0.48 $r^2_{Y/T.M} = 0.09$	0.68	3
Meat price index (1955 = 100)	b = 0.42 $r^2_{Y/M.T} = 0.64$	c = 0.47 $r^2_{Y/T.M} = 0.48$	0.98	4
Fish price index (1955 = 100)	b = 0.02 $r^2_{Y/M.T} - 0.00$	c = 0.98 $r^2_{Y/T.M} = 0.60$	0.94	4

$r^2_{Y/M.T}$ is the square of the partial coefficient of correlation
of Y on M, holding T constant

$r^2_{Y/T.M}$ is the coefficient of determination of Y on M and T
combined

b and c are regression coefficients

(b)   Simple Linear Regressions

Dependent
Variable   Independent Variables

                         Money Supply Index
                         (June 1955 = 100)
                         lagged by:

	2 mos.	3 mos.	4 mos.	5 mos.	Time (months)
Rice price in cvos. per ganta	$b = 0.45$	$b = 0.46$	$b = 0.46$	$b = 0.46$	$b = 0.72$
	$r^2= 0.64$	$r^2 = 0.65$	$r^2 = 0.66$	$r^2 = 0.66$	$r^2= 0.67$
Meat price index (1955=100)	$b = 0.71$	$b = 0.71$	$b = 0.72$		$b = 1.10$
	$r^2= 0.94$	$r^2 = 0.95$	$r^2 = 0.96$		$r^2= 0.95$
Fish price index (1955=100)		$b = 0.63$	$b = 0.62$	$b = 0.61$	$b = 1.02$
		$r^2 = 0.85$	$r^2 = 0.85$	$r^2 = 0.81$	$r^2= 0.94$

(Note: Strictly the lags are half a month less than
labelled here. When the March money supply figure is
matched with the June price figure, there are $2\frac{1}{2}$
months between the date to which the former refers
and the mid-point of the period to which the latter
refers.)

Thus, rice and fish price movements are better explained as
linear time-trends than as responses to money-supply move-
ments: rice not very well as either, fish markedly better
as a linear time-trend. In neither case does money-supply
significantly improve the correlation with time. Meat prices,
however, are slightly better explained by money-supply move-
ments than as a trend, and markedly better by both combined
than simply as a trend. This last result is impressive. I
think the test applied is fairly stringent. The graph of
money supply and seasonally adjusted meat-prices against time
suggests that the latter is following the former closely.
However, if we take the statistical result seriously, it
would seem that the trend must also be taken into account,
and this will explain a large part of the variation. If the

trend continues as in the multiple regression equation, we
should expect meat prices to rise about 6 points a year even
in the absence of a rise in money supply, and about 9 points
a year if money supply rose by the magic figure of 6%.
Furthermore, the evidence of a strong relation between money
supply and the prices of this one important class of commodi-
ties is hardly enough to justify its use as the main indicator
for stabilization. The same underlying relation may exist
in the case of rice and fish - concealed by typhoons, imports
and the like - but clearly no policy can be built on this
supposition. Measures taken to restrict money supply will
affect output, employment and solvency over a wide range of
concern that extends well beyond the price of pork and beef.

Policy Implication

The business of controlling inflation is one aspect of
the promotion of economic growth. Stabilization policy is not
simply a matter of recognising limits to aggregate demand and
therefore to the growth of income. It is a matter of adjusting
economic structures - such features of the landscape as wage-
fixing institutions, the exchange rate, import control, tax and
tariff structures, employment agencies, vocational training
programmes - so as to maximize the level of aggregate demand
consistent with the restraint of inflation below some threshold
of tolerability. Stabilization policy in this sense involves
allocative decisions. It involves shifting final demand and
techniques so as to make less use of scarce factors (foreign
exchange, for example) and more use of plentiful factors
(such as domestic unskilled and certain domestic materials).
It involves converting plentiful factors (unskilled labour
in provincial Samar) into scarce factors (skilled operatives
in Davao City).

The Philippines does not conform entirely to the model
of the A-S economy given above, a model to which a Keynesian
framework of policy thinking can be readily applied. Food
prices are still too important a part of the cost-of-living,
and the marginal income propensity to consume basic foods is
too high. On the other hand, it does not fit the model of the
undeveloped country. The industrial sector is too large and

too dynamic, that is, too responsive to opportunity and inclined to over-supply itself with capacity.

The following oversimplified schema may be made:

TYPE OF ECONOMY

	Industria- lized	Philippines 1962	Undeveloped
Foreign exchange availability to firms	Free	Free	Restricted
Expansiveness of industrial sector in response to high demand	High	High	Low
Labour market at inflationary threshold	Shortage	Surplus	Surplus
Point at which excess demand affects prices	Labour cost in non-agrarian industry	Food	Food and other consumer goods

NOTE: The importance of the suggestion (Note, p. 28, above) that the rise in nominal rural export income may be mainly responsible for the shift of the per capita rice demand curve is that it leads naturally to the use of a three-sector model for stabilization policy. There is a sector producing raw food for domestic consumption, a rural export sector, and an urban non-agricultural sector. The second and third of these, it would seem, have to be distinguished because their consumption patterns are so markedly different. We can, if the guess is correct, increase the output of the third sector considerably without making much difference to grain prices. If this is the case, then policy measures taken to reduce domestic non-agricultural output in an inflation like

that of 1963-64 would not only have had little
value for reducing domestic non-food prices.
They would also have had little value for
reducing food-grain prices. This would strengthen
the case for promulgating as a rough rule the maxim
that in the post-decontrol Philippines inflation
is a negligible risk attending a boom in urban
manufacturing and construction; the risk in such
a case is an excessive import bill. The main
inflationary risks come from rising rural export
prices. This would be at best an oversimplifica-
tion. No evidence has been adduced here to suggest
that the urban classes do not have a high marginal
income-propensity to consume the more expensive
foods such as fish and flesh. But it may be an
instructive over-simplification.

Attribution of the rice-demand inflation
almost entirely to the rise in export earnings
would suggest that the rise in rice demand over
the next few years will be less acute than I
originally supposed when preparing this paper.
1964-5 may mark the attainment of a new plateau
in demand per head rather than of a new rate of
growth. Urban output will, we hope, continue to
grow rapidly. The rise in export peso-income
over the decontrol period can hardly be repeated
for some time.

Several of the factors contributing to inflation in
the Macapagal period are unlikely to recur in the near
future. But the important factor - rising income in export
industries and in non-agriculture - will and must continue
and become more acute. The big problem is to secure suffi-
cient grain, fish and meat supplies to let the export and
non-agricultural sectors rip. I think that something like
this is recognized in the plan document called "Project
Compass" prepared by the then PIA. Food was to receive
prime attention, and industry was to a large extent to be
left to look after itself. The "Project Compass" projection
implying that cereal supplies per head could be kept stationary
does, however, seem grossly at variance with recent experience.

The most important of the key foods, rice, can be
imported at prices which must now be of the same order as
domestic prices. Ignoring for the moment the other key
foods, we may say that in the present situation of the
Philippines - with firms facing unlimited labour and unlimited
foreign exchange - the availability of foreign exchange ought
to be treated as the fundamental constraint, the star indicator,
in stabilization policy. High demand for the products of
industry will do little to raise their prices; it will merely
swell the import bill.

Unless there are some wholly unexpected rises in
domestic grain productivity, domestic expansion under condi-
tions of reasonable stability may be expected to require large,
even increasing, grain imports. This means that we must try
to see what else can be cut out of the import bill. The
reduction of smuggling of protected goods is one line of
advance, which I believe is genuinely under way. Another
star candidate for pruning is the imports of private motor
vehicles and their components. The "transport equipment"
class in the import bill rose at its peak in 1964 to $91,964,000,
about 11.7% of the total visible import bill and far more in
value than the record imports of rice in 1965 about which
there was so much hand-wringing. And "transport equipment"
is very largely attributable to the requirements of private
cars. Of the 63,561 net new motor vehicle registrations in
1965 (the peak year), 36,572 were of "cars" and this group,
with some exceptions (such as taxis, and auto-calesas),
virtually means private cars. Transporting people by private
cars, rather than by public vehicles, adds to the cost of
road-upkeep, adds to the national bill for gasoline, which
itself has a high import component, and one would suppose that
it should have a rather lower national priority than providing
basic food. I can see no argument against really prohibitive
duties on the import of complete cars, either new or second-
hand, and very little argument against prohibitive duties on
bodies, chassis, etc., which (prestige factors apart) could
be (and in the case of jeeps often are) made in the Philippines.
Such a measure would discriminate in favour of buses and jeeps,
probably trucks, and possibly certain highly standardized makes
of cars. The discrimination against private motoring could be
increased by a large rise in private car registration fees.

This set of measures would probably react adversely on certain
branches of the local vehicle-assembly business - but this, if
it leaves extra leeway for general industrial expansion, may
be a cheap price to pay. We should be decreasing the demand
for a commodity of high import-content in order to expand the
demand for commodities of higher domestic content - so shifting
demand from the scarce resource onto more plentiful resources.
The powers of the Executive over the tariff should be used
liberally, and in some cases with short-term flexibility, to
give scope for necessary imports.

A further obvious implication is that measures to
increase grain and fish production must be treated as matters
of the highest urgency. With meat and fruit we may expect
that, over a few years, private enterprise will respond to
higher prices. With rice and fish, notoriously unprogressive,
we have no such assurance. This does not mean that the transfer
of rice land to sugar should be obstructed. Since the key
constraint is foreign exchange, such transfer must be judged
on its foreign exchange-saving power, and my rough estimate is
that while the U.S. quota is still to be filled, one hectare
of sugar land earns far more dollars than one hectare of rice
land saves.

A further implication relates to foreign borrowing.
Grain productivity can be increased markedly with time - as
Taiwan and Malaya bear witness. In the meantime - say the
next ten years - there may be a lump of import demand. If
productivity policies are undertaken seriously, with reorgani-
zation under the Land Reform Project Administration greatly
speeded up and far more field workers trained and employed,
then it is reasonable to borrow heavily abroad for the inter-
vening period. The incredible notion common among Senators
that this will be inflationary ought to be put in its place.
Philippine expansion, if properly presented, ought to have
sales value with the U.S. and international institutions,
provided, of course, that it is clear that the vital food
problem is not being trifled with.

Finally, I would suggest some classes of information
that ought to be available if stabilization policy is to be
properly informed.

1. If foreign exchange is the key constraint, we need to know accurately the import components of marginal investment and output in various industries and sectors. It is unnecessary to point out that this gap is in process of being stopped.

2. Some ex ante survey of industrial investment plans ought to be compiled and kept up-to-date, month by month. (The Federation of British Industries performs this function in Britain.) Such estimates might not be realized, but experience would gradually show what corrections needed to be applied. That private industrial investment is so important is one mark of the fact that the Philippines is a partly industrialized country. I believe that the Economic Development Foundation has thought of providing such a service but has encountered non-cooperation from some businesses. Conceivably, the industrial associations might collect the information.

3. Free and flexible use of the tariff requires detailed studies of cost conditions, expansion plans, and uses of existing capacity, in the industries affected. The PES industry studies are a beginning here, but there is clearly much more detailed work to be done.

It is encouraging that all three needs are recognized and that action is in hand or contemplated.

APPENDIX

Marginal Velocity of Money

For whatever interest it may have I give the results of several regressions which roughly follow the lines of the Friedman-Meiselman article in finding a marginal velocity of money.

In what follows the dependent variable is P where:

P   is the Manila consumer price index in the last month of each quarter seasonally adjusted (1955 = 100).

In either case one independent variable is $\frac{M}{AS}$ where:

M   is the Philippines money supply at the end of each quarter seasonally adjusted.

AS is an estimate of aggregate supply in real terms at the end of each quarter. Gross national expenditure at constant prices derived from the estimates of the former PIA (value-added tables) was treated as the aggregate supply in real terms of the year. A quarter of this value was treated as AS for the end of the June quarter. Linear interpolation between these June figures gave AS for the other quarters.

$\frac{M}{AS}$ is expressed as an index (June 1955 = 100) and in every case is lagged one quarter behind P.

T   is time in quarters with origin at the mid-point of the series.

TABLE 4

(a)   Linear Regression: P against $\frac{M}{AS}$ by quarters, June 1955 to September 1964 for P

Dependent Variable	Independent Variable
P	$\frac{M}{AS}$

b = 0.60
a = 35.9
r^2 = 0.84

(b) Multiple Linear Regression: P against $\dfrac{M}{AS}$ and T
by quarters, September 1955 to September 1964

Dependent Variable	Independent Variable	$r^2_{P/\frac{M}{AS} T}$
P	$\dfrac{M}{AS}$ T	

$$b = 0.28 \qquad c = 0.54$$

$$r^2_{P/\frac{M}{AS} \cdot T} = 0.27 \quad r^2_{P/T \cdot \frac{M}{AS}} = 0.38 \qquad 0.91$$

$$a = 77.7$$

$r^2_{P/\frac{M}{AS} T}$ is the coefficient of determination of P on $\dfrac{M}{AS}$ and T.

$r^2_{P/\frac{M}{AS} \cdot T}$ is the square of the partial coefficient of correlation of P on $\dfrac{M}{AS}$, T being constant.

b in either case ought to be the measure of the marginal velocity of money:

0.60 by simple regression
0.28 with time held constant

The simple coefficient of determination for money supply may look reasonably impressive, but the partial figure with time constant, 0.27, is not strikingly so.

Velocity in the sense of the Cambridge-Fisher equation, "average velocity", would appear to be declining if we take the figures seriously.

The fit of the regression equation

$$P_{(t)} = 35.9 + 0.60 \cdot \frac{M}{AS}(t - \frac{10}{48})$$