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ESTIMATES OF THE NATIONAL INCOME AND PRODUCT OF SOUTH VIETNAM

1967 - 1969

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FOREWORD

The research reported in this Paper was begun and substantially completed by the authors while they were in Saigon during the months of March, April, and May 1970. Since their return from Saigon, the paper has been reviewed and extensively revised. However, these revisions have not caused any alterations of consequence in the original provisional estimates of account entries for the years 1967, 1968, and 1969. The publication of the Paper at this time should facilitate the prompt derivation of estimates of Vietnam's national income and product in 1970.

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I

INTRODUCTION

Users of the national income and product accounts of South Vietnam, as compiled and published by the National Bank of Vietnam, must contend with a large assortment of difficulties. Not only are there the usual problems of interpreting the accounts of an underdeveloped and overcontrolled economy but there are additional difficulties specific to the South Vietnamese accounts that are the joint product of the country's peculiar wartime situation and the manner in which the National Bank collects and processes its data. In this paper we attempt to identify and analyze these problems and then fashion useful estimates of the accounts for the years 1967 through 1969. We begin with a description of the major problems and then offer some provisional methods for correcting three of them. Finally, we present preliminary estimates of the accounts for 1967 through 1969 using the format followed by the United Nations.

A. LAGS IN THE COMPILATION AND PUBLICATION OF THE SOUTH VIETNAMESE ACCOUNTS

A country's national income accounts are a conceptually complete and closed system of sectoral payments and receipts. This imposes a certain lag in their collection and publication that does not occur with most forms of economic information. The rate of collection of the source data for the last entry controls the timing for the entire system of accounts.

In most countries, and neither South Vietnam nor the United States are exceptions, the reports of economic activity in private industry, and particularly agriculture and trade, are the last to arrive. In July of each year the US Department of Commerce publishes the US accounts for the previous year in the national income edition of the

Supplement to the Survey of Current Business.¹ This represents a lag of six months in a country where honest business records are kept as a matter of course, reporting is largely automatic, and the data are processed promptly as they are received. In contrast, the National Bank of Vietnam bases many of its estimates of productive activity on voluntary responses to questionnaires by South Vietnamese businessmen. In other cases the Bank is dependent on the data collections of another government agency or department. Even if the Bank wasted no time in processing information, the reporting process alone would impose delays in excess of six months in the publication of the accounts. A lag of one year would probably represent a creditable performance by the National Bank's statistics department.

Historically, the best performances by the Bank occurred with the publication of the national income and product accounts for the years 1962 through 1965 after an average delay of about sixteen months. In more recent years the unavoidable lags in the construction of the accounts have been magnified by tight budgetary limits and a dearth of skilled manpower. The last complete set of accounts for a single year, 1966, was released in mimeographed form in April 1969 and published for the first time in the Viet Nam Statistical Yearbook² in March 1970. The accounts for 1967 were only incompletely available from worksheets as of April 1970 and almost no efforts had been made to process the source data for 1968 and 1969. Only "back of the envelope" estimates of gross national product by expenditure had been made for the last two years. In effect, the Bank was still laboring on the 1967 accounts when it should have begun processing the data for 1969.

Because economic statistics that appear several years after the fact have lost most of their relevance to current decisions, we have

1. US Department of Commerce, Supplement to the Survey of Current Business, U.S. Government Printing Office, Washington, D. C.

2. Viet Nam Quoc Gia Thong Ke (National Institute of Statistics), Nien-Giam Thong-Ke Viet Nam (Viet Nam Statistical Yearbook), 1969, Volume 15, Saigon.

attempted to extend the work of the National Bank by devising methods for obtaining provisionally useable estimates of the national income and product accounts for South Vietnam for 1967 through 1969. These methods are defended generally in Section II and their application, entry by entry, is described in the Appendix.

B. DETERIORATION IN THE QUALITY OF THE ACCOUNTS

The statistical quality of the accounts is not unrelated to the lags in their compilation. Delays in the collection of economic data are bound to reduce the quality of the data collected--particularly where survey methods are used. Memories fail and records are mislaid. However, the long lags are the least of several aspects of their construction that lead to the conclusion that the published accounts of 1965 and 1966 may have precipitously declined in quality.

The procedures for estimating the accounts were developed in 1963 and 1964 by the National Bank of Vietnam with the technical assistance of the Ford Foundation. The principal architects of these procedures left a set of standard tables for 1960 through 1962, a complete annotated set of worksheets and a detailed set of descriptions in mimeograph forms of their estimation methods. In the construction of the accounts for subsequent years, these original procedures have been followed like a prized French recipe.

The documentation of this original work shows that a good job was done of adapting readily available data to the estimation of the accounts for the economically stable years of the early sixties. With the massive US intervention of 1965 and 1966, however, the macroeconomic stability of the South Vietnamese economy was largely destroyed. Price changes became the primary source of variance in annual statements of economic activity. Massive and sudden changes in the relative magnitudes of account entries accompanied the changing fortunes of war and the economic shocks of a greatly enlarged US presence. Important but less obvious variations in the composition of individual entries were also occurring. The effect of these

changes has been to render prematurely obsolete many of the procedures that are followed in the estimation of specific account entries.

In general the accounts are based on more meticulous measurements of quantities and current values than prices. Also, the National Bank's deflation of the accounts to constant prices is quite perfunctory. Only the expenditure components of gross national product are deflated. Moreover, the price indices that are used in the exercise were not designed for this purpose and are not altogether appropriate. Of course, nothing is lost so long as prices remain fairly stable. Then, variations in the accounts in current prices can be taken to be real and estimation procedures that emphasize the collection of quantity data or simply record current values are entirely appropriate. Unfortunately, prices have risen sharply in every year since 1965. Real changes in economic activity are largely masked in the National Bank's accounts by this inflation. The price indices needed to reveal real changes have not been properly assembled and published.

Sudden large changes in the relative magnitudes of entries have contributed in several ways to the decline in the quality of the accounts. Entries whose size merited only perfunctory treatment in the construction of the 1960-1962 accounts have suddenly grown large. A second manner in which sudden large changes reduce the reliability of estimates can be illustrated by the estimation of depreciation on dwellings. The Bank estimates this depreciation as a fixed fraction of the gross domestic product originating in the ownership of dwellings. Given a reasonable continuity in the construction, use, and destruction of houses, this method is capable of yielding good estimates. But the procedure will grossly underestimate depreciation for 1968 when sections of Saigon were severely damaged during the Tet and May offensives and the city of Hue was all but razed. Depreciation is only one item in which these original procedures implicitly require more continuity in economic activity than was characteristic of the years 1965 through 1969.

Finally, substantial changes in the composition of individual entries have tended to invalidate bench marks set for 1960 and price index weights that date from the 1950s. Bench marks are used frequently in the construction of the accounts to infer the size of an entry where the economic activity cannot be directly measured. Sampling methods require bench marks to relate the sample to the size of the population from which it was drawn. In other cases the National Bank uses bench marks to relate an industry's output and value-added to its more readily measured use of nonfactor inputs. The weights of a price index are also bench marks of a kind. They are the relative quantities of a representative market basket of goods with some common characteristic. As changes occur in the composition of account entries, the fixed weights of price indices tend to become less and less representative of relative quantities in the aggregate variables to which the indices are applied. The obvious remedy for the inevitable obsolescence of bench marks and index weights is to regularly review and revise them. With the recent exception of the consumer retail price indices, this has not been done.

Our attempts to improve the quality of the accounts (both those estimated by the National Bank and, provisionally, by ourselves) have been limited to a search for better procedures for deflating the entries of several of the accounts. This work is reported in Section III.

C. CONCEPTUAL FLAWS IN THE ACCOUNTS

Two major conceptual mistakes appear to have been made in the construction of the accounts. Specifically, most profits on imports have been omitted from the estimates of gross domestic product and, equally important, large transfers in kind between general government and the rest of the world are shown incorrectly as current transfers between households and the rest of the world.

Profits on imports in excess of normal trade margins are a result of the Government of Vietnam (GVN) regulation of the foreign currency market. Both the rate of exchange and the amount of piasters that may be legally converted to dollars is regulated by the GVN. In recent years the legal rate of exchange of piasters for dollars has been kept quite low and the foreign exchange laws have been enforced with sufficient vigor to create profits on legal imports substantially in excess of normal trade margins. The National Bank's procedures omit these profits from the national income and product accounts.

Transfers to and from the rest of the world are derived from the South Vietnamese balance-of-payments statistics. The National Bank identifies that component of these transfers that appears in the GVN budget. The remainder is treated as a current transfer to or from households. Actually, these transfers largely consist of aid in kind. Whenever AID builds a road or the South Vietnamese Army (ARVN) performs a service for some US agency, a current transfer between households and the rest of the world is recorded by the National Bank in the national accounts. This is manifestly incorrect. These transfers in kind are between the GVN and the rest of the world. Moreover not all of them are current transfers. A substantial fraction of US aid in kind to South Vietnam takes the form of transfers of capital goods such as schools, hospitals, roads, bridges, etc., and should not appear in the accounts at all.

Both the omission of excess profits on imports and the misallocation of transfers to and from the rest of the world are errors that can be corrected. The procedures that we have adopted for correcting the accounts are explained in Section IV.

D. CONVENTIONAL PROBLEMS

The National Bank has sensibly chosen to observe the definitions and tabular forms of the United Nations' standard system of accounts. The entries in the UN system are the aggregates for a Keynesian model of a developed capitalist economy. The UN system is somewhat less

appropriate for recording economic activities for an underdeveloped country where production and consumption are largely unseparated by the forms of economic organization or for a controlled economy where the government administers the allocation of goods and services at artificial prices. South Vietnam wears the aspects of both an underdeveloped and a heavily controlled economy. The difficulties of assembling and interpreting the standard accounts in such cases are severe but conventional. They will only be summarized here.

The UN system of accounts is based on sets of distinctions between transactors and between transactions. The root cause of the difficulties in collecting and using national income statistics for an underdeveloped country is that many of these distinctions are accounting fictions. In a developed economy the bulk of the activity reported in the national income accounts reflects market transactions between separate individuals for discernable purposes. Producers, households, governments, and the rest of the world are recognizable and distinct groups of institutional entities. Moreover, the distinction between consumption, capital, and producers' goods may generally be based on the manner in which specific items were actually used. But in South Vietnam, economic roles are typically unseparated by legal forms or custom. The bulk of the civilian population is self-employed, residences and places of business are usually one and the same, and public officials often work for their private gain. Given this blurring of economic roles it is impossible, as a practical matter, to directly infer the final use of a good or service. A purchase of a vehicle by an individual in South Vietnam could represent either consumption or investment and a purchase of gasoline for the vehicle either consumption or the acquisition of an input by the transportation industry.

The fact that many entries are largely accounting fictions has two major ramifications. First, economic activities that involve no deliberate individual acts produce, as a by-product, almost no record of their occurrence. It is not entirely fair to attribute the typically poor state of an underdeveloped country's accounts entirely

to poor or dishonest business records. Very few people anywhere keep records of their transactions with themselves in the separate roles of private producer and consumer. Yet many entries in the accounts contain substantial elements of such contrived flows. The second ramification arises in part as a consequence of the first. To fill out his tables, the national income accountant is reduced to using arbitrary conventions with little justification in economic theory or practice and to using indirect methods of estimation that depend on an implausibly high degree of regularity in economic behavior. Both are characteristic of the methods used by the National Bank. For example, consumption, investment, and intermediate uses of goods and services are estimated using the commodity flow method, which is nothing more than an arbitrary allocation product by product of domestic output and imports to their most probable final uses. Examples of indirect measurements abound in the estimation of domestic product by industry and its division among factors. Trade margins, for example, appear to be computed as a fixed percentage of the value of goods domestically produced and imported minus goods exported.

An entirely different set of problems arise from the government's attempts to control prices and administer allocations in economic markets. The government's enforcement of a disequilibrium exchange rate has already provided us with an example of the difficulties such attempts create in the construction of the national income accounts. An enforced disequilibrium in a market means either that sales are being registered at prices that do not reflect costs or that purchases are recorded at prices that do not correspond to values in use. Attempts to correct these errors, however, involve almost impossible calculations of "true" values and costs.

The problem is further complicated in South Vietnam by the very imperfect enforcement of most economic controls. Many transactions are reported at prices other than those at which they actually took place or, even more commonly, are not reported at all. Rents in

Saigon are invariably paid "at the back door" at rates that exceed those decreed by the government.

The problems caused by market controls are endemic in the accounts of South Vietnam. The government seeks to control the prices of a long list of goods and services, rents, interest rates, and the wages of large segments of the population. The government also frequently interferes in markets by forcing participants to engage in involuntary transactions. The military draft, seizures of property, foraging by troops, and collections in kind at the ubiquitous national police check points are all examples of such interference.

Our paper does not include any attempts to correct errors in the accounts attributable to either the underdeveloped state of the South Vietnamese economy or the government's proclivity for interfering in every market it can identify. Errors from these sources are probably impossible to correct to any extent anyway. However, users of the accounts should be aware that they exist.

E. WHAT ARE THE ESTIMATES WORTH?

Estimates of the national income and product accounts for the years 1960 through 1969 are presented in Section V. The statistics for the years 1960 through 1966 are identical to those published by the National Bank in the Viet Nam Statistical Yearbook.³ Some of the 1967 figures were obtained unofficially from the National Bank. The remaining estimates were derived with the provisional methods described in Section II. Gross national product is also shown in constant (1964) piasters by expenditure and by industrial origin. The deflation was performed using the indices derived in Section III. The changes to entries that would result from making the corrections to the accounts described in Section IV have been shown separately at the bottom of each table. At the conclusion of Section V we present

3. Viet Nam Quoc Gia Thong Ke (National Institute of Statistics), Nien-Giam Thong-Ke Viet Nam (Viet Nam Statistical Yearbook), 1964-1965, 1966, 1967-1968 and 1969, Volumes 12, 13, 14, and 15, Saigon.

a comparison of our provisional estimates of gross national product for 1967, 1968, and 1969 with some rough estimates that were made by the National Bank in February 1970.

Like other things in South Vietnam the national income and product accounts are not up to Western standards but do not compare unfavorably with the norm for other underdeveloped countries. The South Vietnamese national accounts will certainly not support the kind of econometric studies that have been performed with comparable US data. Nevertheless, the accounts are far from useless for quantitative analysis in the hands of a properly cautious researcher.

The estimates consist of ten observations of dubious independence. That is, the last two or three observations are often somewhat dependent (through our estimation procedures for missing entries) on the first seven or eight observations. Thus, any statistical use of our estimates is severely constrained by a limited number of degrees of freedom. Nevertheless, simple regressions involving no more than one or two independent variables are possible and may reveal significant features of the economy.

Users should also be conscious of the fact that individual series are subject to unknown but systematic biases. This is really not a fatal flaw for most purposes. Consistency of collection procedures, even bad ones, provides data series that may be interpreted in a consistent manner year to year. Measured private consumption in 1966 may not conform well to any theoretical construct but it remains an estimate of about the same quantity that was measured in previous years. However, the probable biases in entries rule out international comparisons of almost any kind. In fact it is something of a truism that such comparisons between national income statistics cannot validly be made. It is easy, however, to slip into the trap by attempting to compare parameters such as the marginal propensity to consume or save and ratios of one entry to another. Fortunately, biases in the accounts need not affect the validity of comparisons made within the accounts between entries for different years.

Researchers should be particularly cautious when using deflated figures. In these estimates errors in recording current values are compounded by errors and biases in the price indices used to deflate them. Moreover, the appropriateness of several indices as used is questionable. The deflated accounts for expenditures on gross national product appear to be superior to those for gross domestic product by industrial origin.⁴ In general, the relatively large deflated production and expenditure accounts tended to exhibit trends that correlated with quantitative trends and general expectations. For example, the trend of deflated gross domestic product for agriculture directly fluctuated with paddy rice production for 1964 through 1968 and the gross domestic product of manufacturing correlated directly with the changes in the index of industrial production for 1964 through 1968. On the other hand, relatively small entries such as the gross domestic product of the electricity, water, and gas sector did not directly fluctuate with the trend of the index for electric power production, 1963 through 1968, nor did the variations in deflated gross domestic product for transport, storage, and communication directly correspond with the 1964 to 1968 trend in tonnages hauled in inland waterways.

Finally, it appears that individual entries are likely to contain substantial random errors. In a general way these errors tend to be related to the manner in which the entries are estimated. The more direct the method of estimation, the smaller the probable magnitude of the errors. A rough ranking of tables by the magnitude of random errors in entries would probably appear as follows:

1. External Transactions
2. General Government
3. National Income and Gross Domestic Product
4. Gross National Product and Gross Domestic Capital Formation (2 tables)
5. Households and Private Nonprofit Organizations

4. Although, in six of nine years, the deflation discrepancy, resulting from these two differing sources of deflated GNP, was less than 2 percent.

Fortunately, at least in a statistical sense, the external shocks to the South Vietnamese economy in the past decade have been severe. The perturbations in account entries have been large enough and sufficiently consistent with expectations to suggest that the most important aspects of the economy's progression remain observable in the accounts. In general, significant variations appear to dominate random errors. However, a prudent analyst would do well to hedge assertions that are not based on conspicuous trends over a series of annual observations.

II

ESTIMATION OF THE ACCOUNTS

The National Bank of Vietnam depends heavily in its estimation of the accounts on voluntary responses by businessmen to questionnaires and on economic data supplied by other government agencies and departments. This data typically requires almost a year to assemble. As of April 1970, the data for 1968 had been collected but not processed by the National Bank and the data for 1969 were still being assembled. Therefore, obtaining reasonably current national income and product statistics is not a simple matter of accelerating the National Bank's normal procedures.

Instead, to obtain provisional estimates we require provisional methods that do not employ much of the normal source data. Our approach has been to use the same data sources and to follow approximately the normal procedures to estimate as many account entries as possible. The remaining entries are either derived as an account balance item or estimated using a statistical procedure relating the entries to data series that are independently collected and published on a current basis or to other account entries. Our principal task in this Section is to present a general description and critique of the methods we have used to complete the accounts of South Vietnam for the years 1967, 1968, and 1969. Descriptions of the derivations of individual entries are displayed in the Appendix.

Before explaining our methods for obtaining provisional estimates of individual entries, we must first describe the structure of the South Vietnamese national income and product accounts. So, we begin with a digression on the United Nations standard system of tables and entry definitions.

A. THE UNITED NATIONS' SYSTEM

For a detailed discussion of the conventions, definitions, and tables of the United Nations' standard system of accounts, the reader is referred to A System of National Accounts and Supporting Tables.¹ National income and product accounts for many nations are assembled and published according to this system in the United Nations' Yearbook of National Accounts Statistics.² We shall provide here only a cursory description of the basic components of the United Nations' system.

In the UN standard system, four separate records of expenditures and receipts are kept for four different groups of participants in the economy. The types of transactions recorded in each of these four accounts are shown in Tables 1 through 4. All current expenditures and receipts by households and nonprofit organizations are shown as entries in Table 1. Receipts include payments for factor services and transfers. Expenditures are for consumption, direct taxes, and transfers. Saving is the residual item. All of the receipts and expenditures of productive units in the economy are shown in Table 2, the national income or net national product account. Receipts are from the sales of domestically produced goods and services; expenditures describe the disposition of these receipts among households, corporations, and government. All current nonmilitary receipts and expenditures by all levels of government that are not related to the production of goods and services are shown in the general government account, Table 3. Receipts include payments for capital services, taxes, and current transfers; expenditures include current public consumption, subsidies, and current transfers. The account

1. United Nations, Department of Economic and Social Affairs, A System of National Accounts and Supporting Tables, Studies in Methods, Series F, No. 2, Rev. 2 (New York, 1964).

2. United Nations, Department of Economic and Social Affairs, Yearbook of National Accounts Statistics, 1960, Vol. 1 (New York, 1969). The accounts for the Republic of Vietnam may be found here on pages 711-725.

Table 1

TYPES OF TRANSACTIONS INCLUDED IN "HOUSEHOLDS AND PRIVATE NONPROFIT ORGANIZATIONS"

Receipts	Expenditures
Compensation of employees	Private consumption expenditures
Income from property and entrepreneurship	Direct taxes on households
<u>less</u> Interest on consumers' debt	Other current transfers to general government
Current transfers from general government	Current transfers to the rest of the world
Current transfers from the rest of the world	<hr/>
Statistical discrepancy	Saving of households and non-profit organizations

Table 2

TYPES OF TRANSACTIONS INCLUDED IN "NATIONAL INCOME" (NET NATIONAL PRODUCT)

Receipts	Expenditures
Gross domestic product at factor cost	Compensation of employees
<u>less</u> Provision for the consumption of fixed capital	Income from unincorporated enterprises
Net factor income payments from the rest of the world	Income from property
	Corporate transfer payments
	Direct taxes on corporations
	General government income from property and entrepreneurship
	<u>less</u> Interest on the public debt
	<u>less</u> Interest on consumers' debt
	Statistical discrepancy
	<hr/>
	Saving of corporations

Table 3

TYPE OF TRANSACTIONS INCLUDED IN "GENERAL GOVERNMENT"

Receipts	Expenditures
Income from property and entrepreneurship	General Government consumption expenditures
<u>less</u> Interest on the public debt	Subsidies
Indirect taxes	Current transfers to households
Direct taxes on corporations	Current transfers to the rest of the world
Direct taxes on households and nonprofit organizations	
Other current transfers from households	<hr/> Saving of general government
Current transfers from the rest of the world	

Table 4

TYPES OF TRANSACTIONS INCLUDED IN "EXTERNAL TRANSACTIONS"
(REST OF THE WORLD)

Receipts	Expenditures
Imports of goods and services	Exports of goods and services
Current transfers from households	Net factor income payments from the rest of the world
Current transfers from general government	Current transfers to households
	Current transfers to general government
	<hr/> <u>less</u> Surplus of the nation on current account.

is completed by the saving of general government. All current transactions with the rest of the world excluding transfers of military equipment and supplies are shown in the external transactions account, Table 4. The items of this account are exports, imports, net

payments for factor services, transfers, and the surplus of the nation on current account.

In most respects, the UN system of national accounts is very similar to the official US system as far as production, income, and expenditure concepts are concerned.³ However, there are a few differences that bear mentioning for this paper. First, since the industrial origins of domestic product do not include factor services rendered to the rest of the world, the UN system distinguishes between factor and non-factor services. As such, receipts and payments for factor services are included in the computation of the national income, but not the domestic product of the country of location. On the other hand, receipts and payments for non-factor services are considered to originate in the industrial sectors producing the domestic product. Secondly, in the UN system business transfer payments are included as part of income from property and private nonprofit institutions. This means they are included as part of national income, as opposed to being one of the separate items added to national income to obtain gross national product from the income side. Next, interest payments by consumers are not included by the United Nations as part of private consumption expenditures or of gross national product. The last important differences between the UN and the US accounts occur in the entries of the general government account. Under the US system all government receipts and expenditures are treated as current. However, the UN system permits governments to acquire capital assets by purchase or transfer. Therefore capital expenditures and capital transfers are excluded from the general government account under the UN system but not under the US system. Also, no imputation is made for rents on buildings owned and occupied by the government in the US system. Furthermore, the surplus arising

3. There are several differences in the concepts and classifications employed by different countries that can produce variances in the final results depending on the accounts involved. See United Nations, Department of Economic and Social Affairs, National Accounting Practices in Sixty Countries, Studies in Methods, Series F, No. 11, New York, 1969, pp. 244-45.

from government enterprises is netted from subsidies and thus does not appear in the US national income.

The four accounts shown in Tables 1 through 4 may be aggregated into a single table of national expenditures and receipts. This is done by simply listing all the expenditures and receipts shown in Tables 1 through 4 and then deleting those that appear on both sides of the ledger. The resultant aggregated account appears in Table 5. The nation's receipts are simply a listing by source of the net market value of the non-factor goods and services that flowed through the economy. The expenditures are a list of current uses and sectoral saving entries. The sum of these savings entries and the provision for the consumption of fixed capital equals gross domestic capital formation. This familiar identity is shown in Table 6 along with the definition of gross national product. Gross national product is derived from gross domestic product at factor cost in two steps. First, indirect taxes are added and subsidies subtracted to obtain gross domestic product at market prices. Net factor payments from the rest of the world are then added to obtain the gross national product. The first two identities of Table 6 and the fact that the receipts and expenditures of the aggregated account of Table 5 must balance may be combined to yield the familiar disposition of gross national product by ultimate use. This equation is also shown in Table 6.

In the UN standard system a country's national income and product statistics are assembled for publication in ten tables:

- I. Expenditure on gross national product
- II. Industrial origin of gross domestic product
- III. Distribution of the national income
- IV. The finance of gross domestic capital formation
- V. Composition of gross domestic capital formation
- VI. Receipts and expenditures of households and private non-profit institutions
- VII. Composition of private consumption expenditure
- VIII. General government revenue and expenditure
- IX. Central government revenue and expenditure
- X. External transactions

Table 5

RECEIPTS AND EXPENDITURES OF THE AGGREGATED NATIONAL ACCOUNT

Receipts	Expenditures
Gross domestic product at factor cost	Private consumption expenditures
<u>less</u> Provision for the consumption of fixed capital	General government consumption expenditures
Indirect taxes	Subsidies
Imports of goods and services	Exports of goods and services
	<hr/>
	Saving of households and non-profit organizations
	Saving of corporations
	Saving of general government
	<u>less</u> Surplus of the nation on current account

Table 6

NATIONAL INCOME IDENTITIES

Gross domestic capital formation =	Saving of households and non-profit organizations
	+ Saving of corporations
	+ Saving of general government
	- Surplus of the nation on current account
	+ Provision for the consumption of fixed capital
Gross national product =	Gross domestic product at factor cost
	+ Indirect taxes
	- Subsidies
	+ Net factor payments from the rest of the world
Gross national product =	Private consumption expenditures
	+ General government consumption expenditures
	+ Exports of goods and services
	- Imports of goods and services
	+ Gross domestic capital formation

Tables III, VI, VIII and X exhibit the contents of the accounts described in Tables 1 through 4. Table I shows the items in the two gross national product identities of Table 6. Tables IV and V essentially expand the savings/investment identity of Table 6. The remaining three UN tables are supplementary. Table II shows the origin of gross domestic product in eleven industries, Table VII breaks private consumption expenditures down by fifteen classes of commodities and services, and Table IX separates the central government's transactions from those of all levels of government. In addition to showing flows in current prices it is customary to deflate as many of the UN tables as possible to the units of a conveniently chosen base year.

Versions of all ten of these UN tables are compiled and published by the National Bank of Vietnam. However, not all of the recommended entries of the standard UN tables are available. In particular, none of the UN tables show any of the capital reconciliation entries of the various accounts. That is, the saving of any sector must be matched by the net acquisition of capital or financial assets of various kinds. Little of this is exposed in the South Vietnamese national income and product statistics. In other instances account entries are not shown in the suggested detail. For example, gross domestic capital formation is not reported by industrial use. Finally, the National Bank deflates only the entries of Table I to constant base year prices.

We have made provisional estimates of entries for all but two of the supporting tables of the UN standard system. Estimates were not made of the composition of private consumption expenditures, Table VII, or of the central government's expenditures and receipts, Table IX. All of the remaining entries of the accounts that are customarily estimated by the National Bank have been provisionally estimated in current values with the methods about to be described. Our efforts to improve and extend the deflation of the accounts to constant prices are described in Section III.

B. ESTIMATION OF MISSING ENTRIES

Provisional estimates of the missing entries in the national income and product accounts for the years 1967, 1968, and 1969 were made using three general techniques:

1. by compilation directly from the normal data sources;
2. by statistically relating the entry to a collected and published index; or
3. by computation as the balance item of one of the accounts or as the sum of other entries.

In some cases techniques 1 and 2 were combined. Part of an entry was compiled from the normal sources while the remainder was estimated statistically.

Obviously, the ideal way to make provisional estimates of missing entries is to use the same sources and follow the same procedures employed by the National Bank of Vietnam in its construction of the accounts for 1960 through 1966. Most of the missing entries of the External Transactions (Rest of the World) table could be estimated approximately in this manner. The necessary data are contained in the balance of payments of South Vietnam which the National Bank itself compiles and publishes with only a few months delay each year. There is little difficulty in simply extracting items and rearranging to satisfy the somewhat different definitions and conventions of the national income accounts. This procedure is somewhat inexact since some differences exist in the timing of recorded transactions,⁴ the conversion of dollars to piasters must often be done at several different rates and a few arbitrary allocations are necessary. Nevertheless, the fact that our procedures are approximately, rather than precisely, the same as those employed by the National Bank does not

4. For balance-of-payments purposes transactions usually are recorded at the time that payments are made and receipts taken. But for the national income and product accounts the best practice is to record transactions at the time goods enter the country and services are rendered.

appear to cause significant errors in our estimates of the missing entries.⁵

Unfortunately, entries in most of the accounts could not be compiled so easily from the normal data sources. Rather, the majority of the entries in the accounts were estimated using a statistical procedure relating the entries to current independently collected data series or to previously estimated entries in the accounts. The procedure consists of finding an index, X , that forms a stable ratio over time with a missing account entry Y . In technical terms the ratio Y/X is treated as a random variable with a stationary mean, μ , and variance, σ^2 . Estimates of these parameters were made from observations for the years 1960 through 1966 and 1967, if available, using the statistical formulae:

$$\hat{\mu} = \frac{1}{N} \sum_{T=1}^N Y_T / X_T \quad \text{and} \quad \hat{\sigma}^2 = [\sum_{T=1}^N (Y_T / X_T)^2 - N\hat{\mu}^2] / (N-1)$$

Since the value of the index, X , is known for the missing entries, preliminary estimates may be retrieved using the equation:

$$\hat{Y} = \hat{\mu} X$$

The standard deviations of the estimates were obtained using the equation:

$$\hat{\sigma}_Y = \hat{\sigma} X.$$

In essence, the procedure yields a statistical fit of the relationship:

$$Y/X = \mu + u$$

where u is a random variable with a zero mean and variance σ^2 .

5. Our procedures were used to construct the 1967 entries for the External Transactions table. These estimates were then compared to National Bank figures for 1967. The discrepancies were small for every entry.

Obviously, other relationships between the account entries Y and the indices X could have been specified and statistically fit as a basis for the estimation of missing entries. Our choice of the above relationship was dictated, first, by a simple desire to conserve degrees of freedom. At most, eight annual observations of account entries and indices are available for fitting any statistical relationship. With such a small number of observations the introduction of an additional variable in the specified relationship must explain an additional 12.5 percent of the variance of the ratio Y/X just to leave unchanged the estimate of the variance of the error term σ^2 . For example, we could have adopted the specified relationship:

$$Y/X = \beta T + \mu + u$$

where T is a time index and β is a second parameter to be estimated. However, the additional variable T will not typically explain another 12.5 percent of the variance of the ratio Y/X, and the statistical estimates of missing entries obtained using this alternative relationship will generally be inferior to those obtained from a statistical fit of the simpler equation:

$$Y/X = \mu + u .$$

A second reason for the choice of this particular estimating relationship was our desire to avoid heteroskedastic errors. By this we mean residuals that tend to grow in absolute magnitude over time. An equation of the form:

$$Y = \mu X + u,$$

although it involves no more variables and parameters than the estimating relationship we have chosen, will generally yield inferior estimates of missing entries because the variance of the error term u is bound to grow over time. Because of the recent inflation, the size of entries has often increased as much as fivefold over the decade 1960 through 1969. If this increase is matched by an increase

in the probable magnitude of the errors u , then the relationship above is a misspecification and will yield heteroskedastic residuals. On the other hand, the residuals from the equation:

$$Y/X = \mu + u$$

should not tend to exhibit an increase in variance over time.

Although the choice of an index, X , for use in estimating a missing entry, Y , is ultimately a matter of judgment, several criteria were loosely applied in the selection process. First, the index and the entry had to share a plausible economic relationship. Fortuitous correlations were excluded. Second, the ratio X/Y could show no conspicuous trend over time. Next, where a choice existed between an independently collected index and an index based on other statistically estimated entries in the accounts, the independently collected index was almost always chosen. Finally, where several alternative indices could not be discarded on the grounds given above, the final choice rested with the index providing the smallest estimate of the variance σ^2 .

A variety of current published data exists from which an index, X , may be constructed. The GVN's actual expenditures and receipts are reported monthly.⁶ License data has been used to compile detailed statistics on South Vietnamese imports and exports of goods. Also, over the years, selected records of domestic production activities and market prices have been kept and published on a current basis. Most of this data is to be found in the Viet Nam Statistical Yearbook.⁷ and the Monthly Bulletin of Statistics.⁸

6. Data for the early 1960s are available only by the South Vietnamese fiscal year.

7. Viet Nam Quoc Gia Thong Ke (National Institute of Statistics), Nien-Giam Thong-Ke Viet Nam (Viet Nam Statistical Yearbook). 1964-1965, 1966, 1967-1968 and 1969, Volumes 12, 13, 14 and 15, Saigon.

8. Viet Nam Quoc Gia Thong Ke (National Institute of Statistics), Thong-Ke Nguyet-San (Monthly Bulletin of Statistics), So-2 (February) 1970 and earlier editions, Saigon.

Estimates of gross domestic product at factor cost by industrial origin were typically estimated using an index constructed as the product of a published price series and a published output series. For example, the index X for the electricity, water, and gas industry is the average retail price of electricity per kilowatt-hour times electrical production in South Vietnam in thousands of kilowatt-hours. Estimates of the missing entries in the general government account are frequently part statistical estimate and part estimate from the normal source data. For example, indirect taxes consist of taxes on imports and indirect taxes on domestic production. Actual revenue from taxes on imports is readily inferred from published sources, so the statistical procedures were arranged to explain just the receipts from indirect taxes on domestic production.

The validity of our statistical estimates depends upon the stability over time of the ratios Y/X. With only eight observations, none of the usual statistical tests have much power to discriminate between stationary and nonstationary time series. In practice we were reduced to computing a series, looking at it, and using our own judgment to decide if it exhibited too much of a trend. For the indices that were actually chosen, we have computed mean values of the ratio Y/X for the first and second half of the samples. Also, a Durbin-Watson statistic was computed from the residuals of the estimated relationship, $Y/X = \hat{\mu}$. These statistics are all shown in the Appendix. In general they may be used to show that none of our provisional estimates are based on provably nonstationary ratios Y/X. However, as we have noted, the tests have almost no power.

Many of the entries of the national income and product accounts are aggregates of other entries. We have estimated these items in the obvious way--as the sum of the provisional estimates of their components.

Five entries may be estimated as residual balance terms. Total expenditures must equal total receipts in each of the four accounts that form the basis of the UN system. This means that one item in each of the four accounts of Tables I through IV may be selected and

estimated last to balance the account. A fifth entry may be estimated as a balance item if the first identity of Table 6 is not used to estimate gross domestic capital formation. By making a statistical estimate of gross domestic capital formation, we make it possible to treat any other entry of the gross national product table (any element of the right hand side of either of the gross national product identities of Table 6) as a balance entry. In each account we chose as the balance item an entry of substantial magnitude that would have been difficult to estimate satisfactorily in any other way. Our choices for each account are shown in Table 7.

Table 7

ACCOUNT BALANCE ENTRIES

Account	Balance Entry
Households and private non-profit organizations	Saving of households and private nonprofit organizations
National income (net national product)	Income from unincorporated enterprises
General government	Saving of general government
External transactions (rest of the world)	Surplus of the nation on current account
Gross national product	Private consumption expenditures

Our choice of entries to be estimated as residuals to balance the various accounts conforms to the normal practice of the National Bank of Vietnam in all but one respect. Normally, the National Bank makes two estimates of private consumption expenditures. On one hand, private consumption expenditures are derived as the balance item of the gross national product table. The second estimate is obtained as the sum of the independently estimated entries of a supplementary private consumption expenditures table, Table VII. The figure that finally appears in the published accounts is arrived at by splitting the difference between the two estimates. Then, to keep the accounts in balance, a statistical discrepancy equal to half the difference

between the second and the first estimate of private consumption expenditures is added to gross domestic product, inserted as a receipt in the households and private nonprofit organizations account, and inserted as an expenditure in the national income table. Our procedure has been to estimate the statistical discrepancy separately, delete the supplementary table for private consumption expenditures, and estimate total private consumption expenditures as the fifth balance entry.

The standard deviations of estimated balance items and totals were computed as if the errors in the estimates of individual entries were independently distributed. The estimated standard deviation, $\hat{\sigma}_Y$ of the balance item or total, \hat{Y} , is derived from the estimated standard deviations, $\hat{\sigma}_1, \dots, \hat{\sigma}_M$, of the items that enter into the computation of \hat{Y} according to the formula:

$$\hat{\sigma}_Y = \sqrt{\hat{\sigma}_1^2 + \dots + \hat{\sigma}_M^2}$$

Since it is probable that most of the errors in our provisional estimates of missing entries are positively correlated, this calculation is bound to provide estimates of standard deviations that are typically too small. For this reason our estimates of the standard deviations of balance entries and totals are best read as lower bounds on the magnitudes of probable errors.

C. ON "PROVISIONAL" ESTIMATES

Our estimates are not intended to be more than temporary substitutes for properly assembled national income and product statistics. National income and product statistics ought to be based on direct measurements of economic activity wherever possible. In contrast, our provisional estimates are largely based on statistical correlations observed over the period 1960 to 1967. As the years pass, provisional estimates based on these correlations will become increasingly suspect. Therefore our procedures cannot logically be promoted as an alternative to the National Bank's collection process.

The details of our procedures are provisional as well. As national income and product statistics issue from the National Bank of Vietnam, the additional observations thus provided should be employed to re-estimate the statistical relationships used to derive many of the missing entries. Equally important, some of the ratios of account entries to indices, Y/X , will be exposed as nonstationary over time. Whenever this occurs new indices must be sought and inserted and the provisional estimates revised.

III

DEFLATION OF NATIONAL INCOME ACCOUNTS

In a country such as South Vietnam which has recently experienced high annual rates of inflation, the most useful data for analytical purposes are those that have been deflated to the prices of an appropriately chosen base year. In general, there are no perfect price indices that can be used for deflating current values to constant values because of continual shifts in consumption patterns, production costs, product mixes, factor shares, etc. In our study of the Vietnamese national accounts we reexamined the suitability of the National Bank's choice of price indices for the various national income items being deflated. In three instances this resulted in the selection of new indices. The base period for the constant term values was 1964, this being the last year of fairly stable prices before the large buildup in the US presence. Our account deflation efforts include not only gross national product from the expenditure side, but also gross domestic product by industrial origin. The latter table is not deflated by the National Bank.

A. DEFLATION OF EXPENDITURES ON GROSS NATIONAL PRODUCT

In general, the price indices we used to deflate expenditures on gross national product are based on market prices of consumption goods. Table 8 shows the various national income elements and their deflators as used by the Bank and by us. The actual index numbers are recorded in alphabetical sequence in Table 9. The same indices were used for expenditures on both export goods and services. To develop constant public consumption and net factor income from abroad, implicit deflators were derived from the National Bank's data for these same accounts at current and constant prices. An implicit deflator was used for net factor income because of our lack of confidence

Table 8

APPLICATIONS OF NATIONAL INCOME DEFLATORS

National Income Item	Deflation Indices	
	National Bank of Vietnam	Institute for Defense Analyses
Private Consumption Expenditures	Working Class Consumer Price, with rent	.67 x Working Class Consumer Price, with rent + .33 x Middle Class Consumer Price, with rent
Public Consumption Expenditures:		
Goods	Middle Class Consumer Price, without rent	Implicit Public Consumption Index
Services	Government wages	
Gross Capital Formation:		
Fixed Investment	Fixed Capital Price	Fixed Capital Price
Increase in Stocks:		
Agricultural Stock	Average - Rice and Raw Materials Wholesale Prices	Manufactured Products Wholesale Prices
All other stocks	Manufactured Products Wholesale Prices	
Exports:		
Goods	Export Price	Export Price
Services	Middle Class Consumer Prices, with rent	Middle Class Consumer Prices, with rent
Imports	Import Prices	Modified Import Prices (see Table 10)
Net Factor Income from Rest of World	Daily Wages	Implicit Factor Income
Value Added by Industrial Origin:		
Agriculture, animal husbandry, forestry, fishing		Agricultural Prices
Mining, quarrying		Working Class Consumer Prices, with rent
Manufacturing		Manufactured Products Price Index
Construction		Working Class Consumer Prices, with rent
Electricity, water, gas		Implicit Public Consumption Prices
Transportation		Working Class Consumer Prices, with rent
Wholesale and Retail Trade, Banking and Insurance		Middle Class Consumer Prices, with rent
Ownership of Dwellings		Middle Class Consumer Prices, with rent
Public Administration and Defense Services		Implicit Public Consumption Prices
Services		Working Class Consumer Prices, with rent
Others:		
Indirect Taxes		Implicit Gross Domestic Product Price (Factor Cost)
Subsidies		Implicit Gross Domestic Product Price (Factor Cost)
Net Factor Income from Rest of World	Daily wages	Implicit Factor Income

Table 9

NATIONAL INCOME DEFLATION INDICES
(1964 Base)

Type of Indices ^a	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Agriculture Prices ^a	69.7	88.4	89.8	100.7	100.0	122.2	194.4	352.0	418.7	556.0
Daily Wages ^b	85.2	86.9	93.5	95.4	100.0	117.2	178.9	261.8	184.0	312.6
Export Prices ^a	109.9	92.3	94.3	103.3	100.0	98.9	109.9	109.9	104.4	98.9
Fixed Capital Prices ^c	97.3	96.3	100.9	99.9	100.0	107.3	152.4	180.0	191.1	217.3
Government Wages ^b	87.0	89.6	92.2	95.0	100.0	118.3	132.7	160.8	165.1	185.2
Implicit Factor Income ^d	85.0	86.8	93.3	95.3	100.0	117.0	178.6	261.1	234.7	347.0
Implicit GDP ^e (Factor Cost)	78.2	88.7	91.3	98.1	100.0	115.1	162.9	238.6	274.6	341.4
Implicit GNP ^f (Income deflated)	78.1	88.7	91.3	98.1	100.0	115.2	164.0	239.9	272.6	341.4
Implicit Public Consumption ^a	86.4	89.2	92.1	95.3	100.0	112.8	134.6	171.3	179.2	201.4
Import Prices ^g	74.8	81.5	91.1	95.5	100.0	104.9	125.5	146.3	158.4	188.1
Manufactured Products Prices ^h	80.0	88.5	93.4	97.4	100.0	104.5	116.9	127.1	162.9	190.2
Middle Class Consumer ⁱ , Price Level with Rent	85.2	89.4	92.8	98.0	100.0	115.3	182.3	254.8	323.3	386.2
Middle Class Consumer ⁱ , Price Level without Rent	84.4	88.6	92.0	97.9	100.0	117.0	191.1	271.1	349.4	408.4
Modified Import Prices ^j	78.6	82.9	90.4	95.7	100.0	106.6	151.0	174.6	184.5	192.8
Private Consumption ^k	83.6	88.3	91.1	97.4	100.0	115.8	186.6	265.6	337.0	408.2
Working Class Consumer ⁱ , Price Level with Rent	82.8	87.8	90.3	97.1	100.0	116.1	188.7	270.9	343.8	419.0

Notes:

- a. National Institute of Statistics, Vietnam Statistical Yearbook, 1969 (Saigon) Prices Chapter. A weighted aggregate index, 60 percent of the wholesale rice price index and 40 percent of the wholesale hog price index.
- b. Research Department, National Bank of Vietnam. The 1968 index number is questionable.
- c. National Institute, op. cit., Arithmetic average of the wholesale price indices for manufactured products, semi-finished products and raw materials.
- d. Derived by dividing current and constant prices for this account in Table I and Table Ia, Section V.
- e. Calculated in the same manner as d. from Table IIa, Section V.
- f. Calculated in the same manner as d. from Table II, Section V.
- g. Ibid.
- h. National Institute, op. cit., Prices Chapter.
- i. Ibid.
- j. See Table 10.
- k. Ibid. A weighted aggregate index, 67 percent of Working Class Consumer Price Index with rent and 33 percent of Middle Class Consumer Price Index with rent.

in the Daily Wage Index.¹ The implicit deflator for public consumption was necessary since our estimating technique did not break this category down into goods and services. The fixed investment component of gross capital formation was deflated with the same price index used by the National Bank. The other capital component, the change in stocks, was deflated with the Manufactured Products Wholesale Price Index. Increases in agricultural stocks were not estimated and deflated separately.

The deflation indices used on private consumption and imports reflect substantial modifications to those used by the National Bank. The price index used to deflate private consumption was produced by aggregating 67 percent of the Working Class Consumer Price Index, including rent, and 33 percent of the Middle Class Consumer Price Index including rent. The 67-33 percent (an approximate ratio of 2:1) weighting results from the National Institute of Statistics 1969 survey of consumer purchases (to be released in the future) which sampled 800 working class and 400 middle class families. The new Private Consumption Index should more adequately reflect the mix of actual private consumption. It is of interest to note that the two current consumer price indices tend to overstate the more recent rises in the cost of living because they use a 1963 weighting of consumer purchases which had shifted by 1969 towards a proportionately smaller consumption of food, the prices for which rose more rapidly than those for other consumer goods.²

The techniques used to calculate the Modified Import Price Index are described in Table 10. This index was rederived because the original Import Price Index yielded an apparent abnormally low rate of increase during 1966 and 1967, suggesting an underestimation of the effects of the 1966 devaluation. The technique for obtaining a new

1. The 1968 figure is lower than the 1967 figure, an annual trend inconsistent with that of other major price indices.

2. Douglas C. Dacy, Richard Louie, and Dale L. Moody, Income Distribution Between the Urban and Rural Sections of South Vietnam, IDA 1970, (not published). Appendix C: "Biases in the Urban Consumer Price Index."

Table 10

CALCULATION OF MODIFIED IMPORT PRICE INDEX, 1960-1969
(1964 - Base Year for Indices)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Current value of imports-goods and services (Millions of Piasters) ^a	11,568	12,539	17,888	21,031	22,951	28,621	76,008	104,680	99,951	118,15
2. Constant value of imports ^b (Millions of Piasters)	4,232	13,592	18,548	23,276	22,951	26,357	41,262	53,294	46,647	51,01
3. Implicit Import Price Index ^c	273.3	92.3	96.4	90.4	100.0	108.6	184.2	196.4	214.3	231.6
4. Import Price Index ^d	74.8	81.5	91.1	95.5	100.0	104.9	125.5	146.3	158.4	188.1
5. Average Tax Rate on Imports ^e (Per Piaster)	.186	.231	.266	.252	.254	.231	.200	.268	.304	.507
6. Import Price (CIF) Index ^f	78.6	82.9	90.4	95.7	100.0	106.6	130.4	144.9	153.1	160.0
7. Modified Import Price Index ^g	78.6	82.9	90.4	95.7	100.0	106.6	163.9	196.4	207.5	216.8

a. Table A10, Appendix.

b. Gross national product (income deflated) less private consumption, public consumption, gross capital formation, exports and net factor income. See Table Ia, Section V.

c. Index of Item 2, 1964 base year. The number for 1960 is an aberration because agricultural prices dropped that year, the only time during the 1960s.

d. Table 9.

e. Based on actual import duties.

f. An index of the annual resultants obtained from the following formula. $R = \frac{I}{(1.0+T+M)}$, where I =

Import Price Index (Item 4); T = average tax rate and M = average import markup (18 percent for all years).

g. Same as Import Price (CIF) Index, 1960-1965. 1967-1969 are the resultant of multiplying the aforementioned index numbers by 1.355. This is the multiplier required to make the modified index equal the implicit index (Item 3) in 1967, first full year after devaluation. Devaluation occurred June 18, 1966 when the official piaster exchange rate increased to 80D/US \$1. Thus the original 1966 index of 130.4 was split into 2 parts, 119.9 and 142.6 representing two halves of 1966. (These numbers were calculated by using the formula in footnote f with import price indexes of 112.3 and 138.7 and tax rates of .164 and .216). The 119.9 was accepted as is for the first half of 1966, but the 142.6 was multiplied by 1.355 to obtain 193.2, reflecting the impact of devaluation. Then, these two index numbers were combined with weights of .4 and .6 respectively (the relative volumes of goods received in the two halves of 1966) to yield 163.9.

import price index begins with the calculation of an implicit import value index from a complementary source. Next, by removing the customs duties and average importers profits, we developed a price index for "real" goods imports (CIF)³ from the Import Price Index. Then by applying a "one-time" correction factor to the latter index during 1966 and 1967, the Modified Import Price Index was developed. The implicit import price index itself was precluded from use by an unusually high result for 1960 caused by a drop in the Agriculture Price Index which was not reflected in the Private Consumption Index.⁴

B. DEFLATION OF GROSS DOMESTIC PRODUCT BY INDUSTRIAL ORIGIN

Ideally, the entries in the gross domestic product table should be deflated by price indices that reflect changes in production costs by industrial sector, such as employee compensation, returns to the firm and so on. Such changes may be in part reflected by the Manufacturing Products Price Index and the Implicit Public Consumption Index which we used. Since other appropriate production-oriented price indices were not available, use was also made of consumption-oriented price indices where they seemed most applicable. The deflation indices used to deflate gross domestic product by economic sectors are shown in the last half of Table 8. Since the National Bank did not choose to deflate the production accounts there are no deflation index comparisons to be made with those we used.

The Agricultural Sector was deflated by an Agricultural Price Index, consisting of 60 percent of the Wholesale Rice Price Index and 40 percent of the Hog Wholesale Price Index. The Agricultural Products Price Index, as provided by the National Institute of Statistics, aggregates prices of several types of plant and animal products.

3. CIF - charges, insurance, and freight.

4. Relative to 1959, the wholesale hog price fell 11 percent in 1960, whereas the middle class price index rose 2 percent and the working class price index fell 1 percent. See National Institute of Statistics, Viet Nam Statistical Yearbook, 1969, Vol. 15, Prices Chapter.

This index was not used because it appeared that the rice prices used to calculate the index are those imposed by the government on rice sales in Saigon. Government price levels often do not agree with the actual market prices for rice. The deflation indices used on the balance of the value added accounts were the published consumer price indices, the Manufactured Products Price Index, or the Implicit Public Consumption Index.

The implicit deflator for gross domestic product at factor cost was used to deflate indirect taxes, subsidies and factor income from the rest of the world. Adding these components to gross domestic product at factor cost yielded gross national product, income deflated. The difference between gross national product, expenditure deflated, and gross national product, income deflated, is a deflation discrepancy.

C. ON DEFLATION INDICES

We have done our best to construct deflation indices from the records of prices and wages that have been published for South Vietnam. However, there is no sense pretending that our indices are altogether error free and appropriate for deflating account entries. They are not.

Price series are subject to error just like any other kind of data. The prices used to construct our deflation indices are annual averages for years in which some prices increased as much as 100 percent. Also, the prices are based on observations made in Saigon and may not be representative for the country as a whole. There is yet a third reason to be suspicious of the price data published by the National Institute of Statistics. The government makes more or less effective efforts to control prices in many markets. In these cases the National Institute of Statistics does its duty by reporting the prices decreed by the government regardless of the government's success in imposing these prices on buyers and sellers. Rents in Saigon, for instance, are simply not those reported by the National Institute of Statistics.

Even if the reported prices are entirely accurate, they have been weighted and averaged in a manner that is almost guaranteed to provide indices that are inappropriate for deflating national income and product. The reason for this is simply that the weights in the indices are generally unrepresentative of proportions in the national income and product aggregates that are being deflated. For example, the manufactured products price index is a weighted average of prices on both imported and domestically manufactured products. Also, the weights are based on a rather obsolete set of proportions. So the index is not particularly appropriate for deflating domestic product in manufacturing during the period 1960 to 1969. But there is nothing better.

The only real solution to the problem of devising deflation indices is for the National Bank to interest itself in collecting price data as it collects the other source data for the national accounts and to use this price data to construct indices with weights that are representative of the proportionate components in the national income and product entries to be deflated. Borrowing price data and indices from the National Institute of Statistics for the purpose of deflating the national income and product accounts is a procedure that ought to be discarded by the National Bank.

IV

ADJUSTMENT TO THE ACCOUNTS

The national income and product accounts, as compiled and published by the National Bank of Vietnam, appear to contain two major but correctible errors. First, excess profits on imports of goods have not been measured and are not included by the National Bank in their estimates of the gross national product. A second more substantial error occurs in the National Bank's treatment of transfers in kind to and from the rest of the world. Most of these transactions are imputed to households and private nonprofit organizations, while, in fact, the government was the principal recipient or donor. Furthermore, some of these transactions involve capital goods and should not be recorded as current transfers at all.

These flaws in the construction of the accounts represent deviations from the standard UN definitions. However, in fairness to the National Bank we must concede that the errors are not large except for the last several years and that corrections to the accounts can be based only on some rather tentative calculations with unreliable data. For this reason additions to account entries have been shown separately at the bottoms of the estimate tables of Section V and are not incorporated in the account entries themselves. In this Section we shall discuss in detail how the errors arise in the National Bank's estimation of the accounts and describe the methods we have devised to make corrections.

A. EXCESS PROFITS ON IMPORTS

The GVN customarily fixes the rate at which the piaster exchanges for dollars prohibits foreign exchange transactions by residents except for approved transactions with the National Bank, and controls the flow of imported goods by requiring importers to obtain licenses.

With the piaster overvalued from inflation, the inevitable result of restricting the volume of imports is a profit on the importation of goods that exceeds the normal trade margin. Like the profits from any other enterprise, these excess profits ought to be measured and included in the gross national product, but at present they are not.

The omission of excess profits on imports of goods sets off a chain of errors in entries throughout the accounts. The errors begin with the omission of the excess profits from the value of factor services in the wholesale and retail trade industry. The fact that these profits are customarily split between importers and government officials acting in a private capacity does not alter the manner in which they should be placed in the accounts. Grafting officials are properly considered to be engaged in trade to the extent that they succeed in capturing the profits on imports through bribes for licenses.

The omission of import profits from wholesale and retail trade leads directly to their omission from gross domestic product at factor cost, from gross domestic product at market prices, and from the gross national product. It is conceivable but rather unlikely that all of these entries are understated by the full amount of the excess profits on imports. More probably, the consistently positive statistical discrepancies of the accounts include some of the omission. In the construction of the accounts the National Bank makes independent estimates of private consumption expenditures. Then, a statistical discrepancy is introduced into the accounts in a manner that splits the difference between this estimate of private consumption and the estimate that would arise if private consumption was computed without the discrepancy as the balance item. This procedure has been described in detail in Section II. The extent to which the National Bank's independent estimates of private consumption expenditures correctly reflect the market prices of imported items is unknown. To this extent, however, the understatement of the value of factor services in the wholesale and retail trade industry is partially offset by an overestimate in the statistical discrepancy.

Even if the National Bank's independent consumption expenditure estimates correctly include all of the excess profits on privately consumed imports, the estimates of gross national product will remain understated. The overestimated statistical discrepancy at most could offset only half of the omitted profits on privately consumed imports. The remaining omitted profits on imports emerge in the accounts in the form of underestimates of private consumption and gross domestic investment. All of these involve the use of imported goods valued, in theory, at market prices. The underestimates arise because the National Bank fails to fully include excess profits in the trade margins and market prices of imported goods.

Entries are also affected in the National Income table and Households and Private Nonprofit Organizations tables. Excess profits on imports most plausibly would accrue to individuals entirely in the form of income from unincorporated enterprises. This increase in national income and in the income of households and private nonprofit organizations ought then to be exactly disposed of as a decrease in the statistical discrepancy, an increase in private consumption expenditure, and an increase in saving of households that is equal to the undervaluation of gross domestic investment.

The excess profits on imports due to the enforcement of a disequilibrium exchange rate are defined by the identity:

$$\pi \equiv e I_{\$} - I_{D}$$

where:

- π - excess piaster profits on imports of goods and services (factor and non-factor),
- $I_{\$}$ - the dollar value of imported goods and services (factor and non-factor),
- I_{D} - the piaster value of imported goods and services (factor and non-factor) at the official rate of exchange, and
- e - the official exchange rate plus the average piaster value of a license to import one dollar's worth of goods.

The obvious difficulty in applying the formula lies in the selection of the quantity e , the average piaster value at the point of entry of a legally acquired dollar's worth of imports. Two approaches have been devised with the intention of providing upper and lower boundary estimates of profits on imports.

A maximum limit is obtained by choosing e as the Hong Kong rate¹ on the purchase of a dollar with piasters. Such transactions are legal in Hong Kong, and the piaster value of a dollar acquired in this manner ought to equal or exceed the piaster value of a dollar acquired from the National Bank by an importer with a valid license.

Suppose, for a start, that a dollar acquired from the National Bank by an importer is a perfect substitute for a dollar acquired in Hong Kong. Obviously, then, the Hong Kong exchange rate is the correct value for e . However, dollars acquired in these two ways are not perfect substitutes. The first dollar must be used as it is received to acquire a specific item for importation. A dollar acquired in Hong Kong may be used to import only smuggled goods. If we assume that smuggling entails minimal risks, then the Hong Kong rate will exceed e by the average tax rate on one dollar's worth of imports. As the financial risks of smuggling increase the Hong Kong rate and e approach each other but the fact that smuggling has been a persistent problem during the decade of the sixties provides indirect evidence that the Hong Kong rate has never fallen below the true value of e . Smuggling would not have occurred had the financial risk of penalty exceeded the amount of the customs evaded.

A minimum estimate of profits on imports may be made by choosing e according to the formula:

$$e = .623 P_D/P_\$$$

1. See Office of Joint Economic Affairs, USAID/Vietnam, Annual Statistical Bulletin, No. 12, December 1969 and Office of Economic Policy, Bureau for Vietnam, AID, Summary of Monthly Economic Data for Vietnam, January-February 1970.

where:

- P_D - Piaster price index of imported goods CIF before customs and normal trade margins but after excess profits due to the currency exchange, 1964 = 1.0. See Section III, Table 10, line 7.
- $P_\$$ - Dollar price index of imports for less developed countries, 1964 = 1.0. Source: International Financial Statistics, International Monetary Fund, Vol. XXIII, No. 3, March 1970, pp. 28-29.

The constant .623 was chosen on the assumption that excess profits on imports vanished in the six months following the devaluation of June 1966. That is, e is equal to the official exchange rate of 118 for the import prices P_D and $P_\$$ that prevailed during the second half of 1966. Since excess profits on imports did not in fact altogether disappear during this period, the calculation will tend to underestimate the true value of e . The official exchange rate, the Hong Kong exchange rate, and the values of e computed from the formula above are compared in Table 11.

The estimates of maximum and minimum additions to gross domestic product in the wholesale and retail trade industry follow immediately from the selection of the exchange rates. However, further directions are needed to allocate these additions among the other account entries that are in error. Identical procedures have been adopted for both the maximum and minimum additions. The computation of additions to specific entries in the accounts are summarized in Table 12.

The calculations in Table 12 are based on the assumption that the statistical discrepancy in the accounts contains nothing of the understatement of trade margins. It is possible, however, that as much as half of the addition to private consumption expenditures computed using the procedure we have described ought, instead, to be shown as a decrease in the statistical discrepancy. The statistical discrepancy appears as an entry in two of the national income and product accounts. A reduction of the statistical discrepancy would have to be accompanied by a reduction of equal magnitude in the entries:

Table 11

EXCESS PROFITS DATA

(Exchange rates used in calculations (Piasters per Dollar))

Year	Official ^a	Maximum	Minimum	Imports of Goods and Services (Factor and Non-Factor) ^b
1960	35	89.31	49.46	\$ 254.9 mil.
1961	35	93.44	52.17	279.4
1962	60	92.62	56.32	249.7
1963	60	99.07	59.62	283.4
1964	60	121.54	61.68	282.7
1965	60	133.18	65.11	349.6
1966 (full year)	89	158.21	100.11	567.7
1966 (last half)	118	159.95	118.00	
1967	118	150.74	119.96	701.4
1968	118	165.60	126.74	744.7
1969	118	216.60	131.13	862.9

- a. The official rate of exchange is a composite of the legal rate of conversion of piasters to dollars plus the rate of any mis-labeled "taxes" on legal sales of foreign exchange such as the five-sevenths tax and the economic consolidation tax. A discussion of past manipulations of the official rate by the government may be found in Douglas C. Dacy, The Fiscal System of Wartime Vietnam, Institute for Defense Analyses, Study S-337, (Arlington, Virginia: February 1969), pp. 17-28.
- b. Includes only those goods using foreign exchange. Imports of Titles II and III goods for PL 480, bartered goods, etc. are excluded.

Table 12

COMPUTATION OF ADDITIONS TO ENTRIES DUE TO INCLUSION OF EXCESS PROFITS ON IMPORTS

Entry : Gross domestic product in wholesale and retail trade, Table II.^a
 Addition: Excess profits on imports.

Entry : Gross domestic product at factor cost, Table II.
 Addition: Excess profits on imports.

Entry : Expenditure of gross domestic product, Table I.
 Addition: Excess profits on imports.

Entry : Expenditure on gross national product, Table I.
 Addition: Excess profits on imports.

Entry : Private consumption expenditure, Tables I and VI.
 Addition: [Excess profits on imports] times [one minus the fraction of expenditures for vehicles, machinery, and parts relative to total imports of goods and services (factor and non-factor) using foreign exchange].

Entry : Gross domestic fixed capital formation, Table I and V.
 Addition: See addition for vehicles, machinery, and parts.

Entry : Expenditures for vehicles, machinery, and parts, Table V.
 Addition: [Excess profits on imports] times [fraction of expenditures for vehicles, machinery, and parts relative to total imports of goods and services (factor and non-factor) using foreign exchange].

Percentage of Capital Items to Total Imports^b

1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
17.5	13.5	11.8	8.4	9.8	9.1	11.0	13.2	7.0	9.6

Entry : Income from property and entrepreneurship, Table VI.
 Addition: Excess profits on imports.

Entry : Income from unincorporated enterprises, Table III, and property and entrepreneurship, Table 6.
 Addition: Excess profits on imports.

Entry : National income (Net national product at factor cost), Tables I and III.
 Addition: Excess profits on imports.

Entry : Income of households and private nonprofit corporations, Table VI.
 Addition: Excess profits on imports.

Entry : Savings of households and private nonprofit corporations, Table VI.
 Addition: Addition to gross domestic capital formation less the additions to savings of general government and to the deficit of the nation on current account.

a. Table numbers refer to the national income and product tables, Section V.
 b. Figures for 1960 taken from Annual Statistical Bulletin, No. 12, p. 21 and 1969 from Vietnam Statistical Yearbook, 1969, Vol. 15, pp. 282-284. 1969 figure was based on the first six months' statistics.

- Gross domestic product at factor cost
- Expenditure on gross domestic product
- Expenditure on gross national product
- Private consumption expenditures
- Income from unincorporated enterprises and Income from property and entrepreneurship
- National income
- Income of households

The additions to the accounts shown at the bottoms of the estimate tables in Section V reflect no alterations in the statistical discrepancy.

B. TRANSFERS TO THE REST OF THE WORLD

Although similar errors are involved, we shall consider separately transfers to and transfers from the rest of the world. The National Bank's estimate of total current transfers to the rest of the world is derived from the Balance of Payments in accordance with standard practice. An error arises, however, in the Bank's determination of the domestic source of these transfers. Only those transfers that may be identified within the government's budget are apparently listed as current transfers from general government to the rest of the world. The remainder is treated as a current transfer from households and private nonprofit organizations to the rest of the world.

In actual fact, very few of these transfers are made by households. Rather, they consist of extrabudgetary transfers or transfers in kind from the government or quasi-government agencies of South Vietnam to the military forces and agencies of foreign governments located in South Vietnam. These transfers ought to be shown as proceeding from general government rather than households.

Therefore, the accounts as published by the National Bank tend to understate transfers from general government to the rest of the world and to overstate by an equal amount transfers from

households and private nonprofit organizations to the rest of the world. Compensatory errors also appear in the balance entries, saving of general government, and saving of households.

The estimation of additions to the accounts for transfers to the rest of the world depends upon the selection of a better basis for determining the domestic source of these transfers. Given the available data, the procedure is to treat all official current transfers as transfers from general government and the remainder as transfers from households and private nonprofit organizations. Data on official versus unofficial current transfers have been collected and published in mimeograph form by the National Bank for the years 1960 through 1966. Estimates of official and unofficial transfers for the years 1967, 1968, and 1969 may be made from Balance-of-Payments data. The dollar value of current transfers from households may be roughly estimated as equal to unofficial transfers plus one-half of gifts. This figure may then be converted to piasters at the official exchange rate of 118. Official transfers are the difference between total transfers and the estimate of unofficial transfers. The modifications to account entries entailed by the reallocation of transfers to the rest of the world among their domestic sources are shown in Table 13.

C. TRANSFERS FROM THE REST OF THE WORLD

The National Bank's treatment of transfers from the rest of the world does not differ significantly from their treatment of transfers to the rest of the world. The total size of the transfers is derived from the Balance of Payments. Foreign aid receipts as they appear in the government's budget are used as the estimate of current transfers to general government and the remainder is designated current transfers from the rest of the world to households and private nonprofit organizations.

Again, households are listed as participants in transactions that actually involved the government and its agencies.

Table 13

COMPUTATION OF ADDITIONS TO ENTRIES DUE TO REALLOCATION OF
TRANSFERS TO THE REST OF THE WORLD

- Entry : Current transfers to the rest of the world from households and private nonprofit organizations, Tables VI and VIII.
Addition: Unofficial transfers minus the original estimate of the entry.
- Entry : Current transfers to the rest of the world from general government, Table VIII.
Addition: Official transfers minus the original estimate of the entry.
- Entry : Current transfers to the rest of the world, Table X.
Addition: Unofficial transfers minus the original estimates of the entry.
- Entry : Saving of households and private nonprofit organizations, Tables IV and VI.
Addition: The negative of the addition to current transfers to the rest of the world.
- Entry : Saving of general government, Tables IV and VIII.
Addition: The negative of the addition to current transfers to the rest of the world
- a. Table numbers refer to the national income and product tables in Section V.

The foreign aid receipts that appear in the government's budget consist primarily of withdrawals from counterpart fund accounts by the GVN. This represents only a fraction of the foreign aid that the government actually received. The remainder consists of aid in kind of which the bulk is project aid provided by USAID.

Although the South Vietnamese people are the intended ultimate beneficiaries of foreign aid, it is nevertheless improper to represent foreign aid in kind as a current transfer to households and private nonprofit organizations. To begin with, a large chunk of this aid results in the creation of items of fixed capital such as roads, hospitals, and port facilities that become the property of the GVN on completion. Foreign aid

of this sort is a capital transfer and should not appear in the nation's current accounts at all. The remaining aid in kind consists of the provision of services of a sort that in more normal circumstances would be provided by the government. In the past large amounts of project aid have been employed to organize and sustain programs in public health, public administration, public safety, agriculture, social welfare, revolutionary development, etc. The value of the services provided for such functions is properly treated as a current transfer to general government which is promptly and publicly consumed.

The chain of errors initiated by the National Bank's misallocation of transfers from the rest of the world is appreciably longer than the rather short sequence that resulted from their mishandling of transfers to the rest of the world. This lengthening of the list of incorrect entries is attributable to the fact that some capital transfers from the rest of the world have been incorrectly treated as current. Current transfers to general government are understated by an amount equal to the overstatement of transfers to households minus that amount of foreign aid in kind that creates capital. Total current transfers from the rest of the world, therefore, should decrease as should the surplus of the nation on current account.

Current transfers in kind to general government must result in public consumption. However, the total of public and private consumption expenditures is determined by the National Bank in a manner that is independent of any allocation of transfers from the rest of the world. Therefore, it seems reasonable to suppose that an overestimation of private consumption is occurring in the accounts that is equal to the understatement of public consumption. As was the case with excess profits on imports, as much as half of this understatement of private consumption may, instead, take the form of an understatement of the statistical discrepancy. Our estimates of corrections to the account entries neglect this possibility.

The understatement of current transfers to general government leads to an identical understatement of the total current receipts of government which, in turn, is equal to the undervaluation of public consumption. Therefore, no error is created in the National Bank's estimates of the saving of general government. However, a positive error arises in the Bank's measurement of the saving of households. The overstatement of current transfers to households results in an overestimate of the income of households that exceeds the error in the Bank's estimates of private consumption expenditure. The difference must come out in the wash as an error in the saving of households that is equal in magnitude but opposite in sign to the error in the surplus of the nation on current account.

The estimation of additions to current transfers from the rest of the world required solutions to two distinct technical problems. First, a better basis had to be found for estimating the allocation of transfers to general government and households. And second, the amounts of the transfers that represented capital-creating foreign aid had to be estimated and deducted.

The distinction between official and unofficial transfers was again used as the basis for determining the domestic participant. A division of the National Bank's estimates of total transfers from the rest of the world into official and unofficial transfers is available in mimeograph form for the years 1960 through 1966. For the years 1967, 1968, and 1969 the dollar value of unofficial transfers may be estimated from the balance of payments statistics as unofficial transfers plus two percent of gifts from abroad. Unofficial transfers in piasters were obtained by conversion of the dollar figure at the official exchange rate of 118. Official transfers were computed as the difference between total transfers and unofficial transfers.

The increase in transfers from the rest of the world to general government largely represents the inclusion of project aid in government receipts. A division of the increase into

current and capital transfers was made using information supplied by the USAID Program Office, Saigon. A crude attempt was made program by program to divide fiscal year authorizations into current and capital-creating uses. The fiscal year proportions were then taken to apply to the next calendar year on the assumption that an average lag of six months occurs between the authorization of a program and the receipt of the resultant aid in kind by the GVN. The estimated percentages are shown in Table 14. These percentages were applied not only to US government aid in kind but to projects financed by other free world governments and private organizations. The procedures used to calculate additions to various account entries are described in Table 15.

D. ON THE ADJUSTMENTS

Two distinct sets of additions to entries corresponding to the maximum and minimum estimates of excess profits on imports have been computed for all of the years 1960 through 1969. These additions should be regarded as tentative adjustments to the accounts for the omission of excess profits on imports and the incorrect allocation of transfers to and from the rest of the world. Both sets of additions are shown separately at the bottoms of the estimate tables of the next section. The user can take his choice, use neither, or take an average of both.

Table 14

PERCENTAGES OF PROJECT AID RESULTING IN THE CREATION OF
FIXED CAPITAL

Year	Percent	Year	Percent
1960	30.0	1965	50.6
1961	29.2	1966	44.7
1962	19.0	1967	29.8
1963	32.6	1968	30.6
1964	50.2	1969	39.1

Table 15

COMPUTATION OF ADDITIONS TO ENTRIES DUE TO REALLOCATIONS OF
TRANSFERS FROM THE REST OF THE WORLD

- Entry : Current transfers from the rest of the world to households and private nonprofit organizations, Table VI.^a
- Addition: Unofficial transfers minus the original estimate of the entry.
- Entry : Current transfers from the rest of the world to general government, Table VIII.
- Addition: (Official transfers minus the original estimate of the entry) times (one minus the fraction of project aid resulting in the creation of fixed capital). See Table 14.
- Entry : Current transfers from the rest of the world, Table X.
- Addition: The sum of the additions to current transfers to households and general government.
- Entry : Surplus of the nation on current account, Tables IV and X.
- Addition: The sum of the additions to current transfers to households and general government.
- Entry : Public consumption expenditures, Tables I and VIII.
- Addition: Equal to the addition to current transfers to general government.
- Entry : Current receipts of government, Table VIII.
- Addition: Equal to the addition to current transfers to general government.
- Entry : Private consumption expenditures, Tables I and VI.
- Addition: The negative of the addition to current transfers to general government.
- Entry : Saving of households and private nonprofit organizations, Tables IV and VI.
- Addition: The negative of the addition to surplus of the nation on current account.
- Entry : Income of households and private nonprofit organizations, Table VI.
- Addition: Equal to the additions to private consumption, savings and transfers to the rest of the world.

a. Table numbers refer to the national income and product tables, Section V.

V

THE PROVISIONAL ESTIMATES

This Section contains estimates for the years 1960 through 1969 of eight national income and product tables for the Republic of Vietnam. The data for 1960 through 1966 are as previously published by the National Bank. Some of the 1967 estimates are unofficial statistics gleaned from National Bank worksheets. The remainder of the 1967 to 1969 entries were estimated provisionally using the methods described in Section II. Two of the tables were deflated to constant 1964 prices as described in Section III. Calculations of the net effects of the conceptual errors committed by the National Bank are shown at the bottoms of the tables in the form of additions to entries. The derivation of these additions has been described in Section IV.

The National Bank of Vietnam has prepared provisional estimates of gross national product by expenditure in both current and constant prices for the years 1967 through 1969. We conclude this section with a comparison of these estimates and our own.

A. THE NATIONAL ACCOUNTS, 1960 THROUGH 1969

In the tables that follow, the 1960 to 1966 statistics are as previously published in various issues of the Viet Nam Statistical Yearbook¹ and the Revenu National du Vietnam.²

1. Viet Nam Quoc Gia Thong Ke (National Institute of Statistics), Nien Giam Thong Ke Viet Nam, (Viet Nam Statistical Yearbook), 1964-1965, 1966, 1967-1968 and 1969, Volumes 12, 13, 14 and 15, Saigon.

2. Service du Revenu National, Banque National du Viet Nam, Revenu National du Viet Nam, 1960-1965 and 1966, published in mimeograph May 1967 and 1969, Saigon.

The latter source usually provided a more accurate version of the compiled accounts. It was complete, properly annotated (in French), and comparatively free of typographical errors. It also included a number of auxiliary tables not included in the United Nations' standard system and not published in the Viet Nam Statistical Yearbook. Many estimates of entries for 1967 were obtained from the worksheets of the National Bank. The entries for which such estimates were available may be inferred from the Appendix. We are grateful to the National Bank for making these estimates available to us before their publication. The balance of the 1967 statistics and all of the entries of the tables for 1968 and 1969 have been provisionally estimated according to the procedures described in Section II and the Appendix.

The tables follow as precisely as possible the format used by the United Nations in the Yearbook of National Income Accounts Statistics, 1968.³ This arrangement differs somewhat in form from that used by the National Bank in its publication of the national income and product accounts in the Viet Nam Statistical Yearbook and the Revenu National du Viet Nam. However, the differences are largely cosmetic. Underneath each entry that is a statistical estimate (or derived from several statistical estimates) we have shown standard deviations enclosed in brackets, "()". These standard deviations have been computed with the formulae of Section II. Entries in the UN tables that are inappropriate (or negligible in magnitude) for South Vietnam are indicated by a dash "-". Extended brackets are used to show those items which are combined. Numbers are shown in billions of piasters rounded usually to the nearest tenth. Totals and

3. United Nations, Department of Economic and Social Affairs, Yearbook of National Accounts Statistics, 1968, New York (1969), pp. 711-725.

balance entries were computed from unrounded estimates and then rounded off individually, so the details of the various tables do not always sum to the totals shown. A set of maximum and minimum additions to entries corresponding to the two calculations of excess profits on imports described in Section IV have been prepared and are shown at the bottoms of the appropriate tables. Additions to entries have been estimated for all of the years 1960 through 1969. The estimates in Tables I and II are also given in constant 1964 prices in the tables labeled as Tables Ia and IIIa.

Table I

EXPENDITURE ON GROSS NATIONAL PRODUCT (BILLIONS OF PIASTERS)

Item	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Private Consumption Expenditure	63.7	70.0	77.8	84.8	92.4	108.9	177.0	287.9 (12.0)	316.1 (22.4)	465.6 (29.2)
2. General Government Consumption Expenditure	14.0	15.2	19.7	21.0	25.0	32.5	52.9	73.5	109.9 (13.8)	126.8 (15.9)
3. Gross Domestic Fixed Capital Formation	6.6	6.8	8.7	8.1	9.2	12.3	27.5	35.1	38.4 (3.5)	41.7 (3.9)
4. Increase in Stocks ^a	3.7	.7	.8	-.5	3.6	5.1	7.0	10.1	12.2 (1.1)	18.2 (1.6)
5. Exports of Goods and Services	6.1	5.0	5.3	8.4	7.8	12.0	30.5	42.5	35.9	42.3
6. Less Imports of Goods and Services	-11.6	-12.5	-17.9	-21.0	-23.0	-28.6	-76.0	-104.7	-100.0	-118.2
Expenditure on Gross Domestic Product	82.6	85.2	94.4	100.8	115.0	142.2	218.9	344.3 (12.0)	412.6 (17.2)	576.4 (24.1)
7. Net Factor Income from the Rest of the World	-.8	-.7	-.6	-.4	-.5	2.6	17.4	21.8	18.8	22.7
A. Factor Income from the Rest of the World	.2	.3	.2	.4	.2	3.8	18.6	23.7	21.0	25.2
B. Less Factor Income Paid to the Rest of the World	-1.1	-1.0	-.9	-.8	-.7	-1.2	-1.3	-1.9	-2.2	-2.5
Expenditure on Gross National Product	81.8	84.5	93.8	100.3	114.5	144.8	236.2	366.2 (12.0)	431.4 (17.2)	599.1 (24.1)
8. Less Indirect Taxes	-9.5	-11.4	-11.5	-12.2	-14.7	-14.5	-25.6	-44.7	-48.5 (4.0)	-85.9 (6.1)
9. Plus Subsidies	.3	.3	.5	.1	.2	.7	.3	.2	.3 (.2)	.3 (.2)
10. Less Provisions for the Consumption of Fixed Capital	-3.9	-3.9	-4.7	-4.7	-4.7	-5.1	-8.6	-13.0 (1.0)	-15.9 (1.4)	-22.5 (2.0)
Net National Product at Factor Cost=National Income	68.7	69.5	78.0	83.5	95.2	125.8	202.4	308.6 (12.1)	367.4 (16.8)	491.0 (23.4)
Maximum Additions To:										
Net National Product and Gross National Product	13.8	16.3	8.1	11.1	17.4	25.6	39.3	23.0	35.4	85.1
Private Consumption Expenditures	10.5	13.2	5.1	6.9	12.7	20.4	18.3	-1.9	10.7	58.0
Public Consumption Expenditures	.9	.9	2.1	3.2	3.0	2.9	16.7	21.8	22.2	19.0
Gross Domestic Fixed Capital Formation	2.4	2.2	1.0	.9	1.7	2.3	4.3	3.0	2.5	8.2
Minimum Additions To:										
Net National Product and Gross National Product	3.7	4.8	-.9	-.1	.5	1.8	6.3	1.4	6.5	11.3
Private Consumption Expenditures	2.1	3.2	-2.9	-3.3	-2.5	-1.2	-11.1	-20.6	-16.2	-8.7
Public Consumption Expenditures	.9	.9	2.1	3.2	3.0	2.9	16.7	21.8	22.2	19.0
Gross Domestic Fixed Capital Formation	.6	.6	-.1	-.009	.05	.2	.7	.2	.5	1.1

a. Increases in stocks of rice, rubber, and livestock only for 1960-1963. For 1964-1969, includes also increases in industrial stocks.

Table Ia

EXPENDITURE ON GROSS NATIONAL PRODUCT
(BILLIONS OF 1964 PIASTERS)

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
Private Consumption Expenditure	76.2	73.3	85.4	87.1	92.4	94.0	94.9	102.4 (4.5)	93.8 (6.6)	114.1 (7.2)
General Government Consumption Expenditure	16.3	17.1	21.4	22.1	25.0	23.8	39.3	42.9	61.3 (7.7)	62.9 (7.9)
Gross Domestic Fixed Capital Formation	6.7	7.0	8.6	8.1	9.2	11.4	18.1	19.5	20.1 (1.8)	19.2 (1.8)
Increase in Stocks	4.7	.8	.8	-.5	3.6	4.7	6.0	8.0	7.5 (.7)	9.5 (.9)
Exports of Goods and Services	6.0	5.5	5.7	8.3	7.8	10.8	17.4	18.9	14.2	14.2
Less Imports of Goods and Services	-14.7	-15.1	-19.8	-22.0	-23.0	-26.8	-46.4	-53.3	-48.2	-54.5
Expenditure on Gross Domestic Product	95.2	94.6	102.1	103.1	115.0	122.9	129.2	144.3	148.7 (6.3)	165.5 (6.9)
Net Factor Income from Rest of World	-1.0	-.8	-.6	-.5	-.5	2.2	9.7	8.4	8.0	6.5
Gross National Product (Expenditure deflation)	94.2	93.7	101.5	102.6	114.5	125.1	139.0	152.6 (4.5)	156.8 (6.3)	172.0 (6.9)
Gross Domestic Product at Factor Cost	93.9	83.7	91.2	90.4	100.4	111.4	118.9	125.6 (3.9)	132.7 (6.2)	143.9 (6.7)
Indirect Taxes	12.2	12.8	12.6	12.4	14.7	12.6	15.7	18.7	17.7 (1.5)	25.2 (1.8)
Less Subsidies	-.4	-.4	-.5	-.1	-.2	-.6	-.2	-.1	-.1 (.1)	-.1 (.05)
Net Factor Payments from Rest of World	-1.0	-.8	-.6	-.5	-.5	2.2	9.7	8.4	8.0	6.5
Gross National Product (Income Deflation)	104.7	95.3	102.7	102.2	114.5	125.6	144.1	152.6 (3.9)	153.3 (6.3)	175.5 (7.1)
Deflation Discrepancy	10.5	1.5	1.2	-.4	-	.5	5.1	-	1.5	3.5
Maximum Additions To:										
Net National Product and Gross National Product (Income Deflation)	16.6	18.5	8.9	11.4	17.4	22.1	21.1	8.6	10.5	20.8
Private Consumption Expenditures	12.6	15.0	5.6	7.1	12.7	17.6	9.8	-.7	3.2	14.2
Public Consumption Expenditures	1.1	1.0	2.3	3.4	3.0	2.5	12.4	12.4	12.4	9.4
Gross Domestic Fixed Capital Formation	2.5	2.3	1.0	.9	1.7	2.2	2.8	1.7	1.3	3.8
Gross National Product (Expenditure Deflation)	16.1	18.3	8.8	11.4	17.4	22.3	25.0	13.4	16.9	27.4
Deflation Discrepancy	.4	.2	.1	-.05	-	-.2	-4.0	-4.7	-6.4	-6.5
Minimum Additions To:										
Net National Product and Gross National Product (Income Deflation)	4.4	5.4	-1.0	-.1	.5	1.5	3.3	.5	1.9	2.8
Private Consumption Expenditures	2.5	3.7	-3.2	-3.4	-2.5	-1.1	-5.9	-7.8	-4.8	-2.1
Public Consumption Expenditures	1.1	1.0	2.3	3.4	3.0	2.5	12.4	12.7	12.4	9.4
Gross Domestic Fixed Capital Formation	.7	.7	-.1	-.009	.05	.2	.5	.1	.2	.5
Gross National Product (Expenditure Deflation)	4.3	5.4	-1.0	-.04	.5	1.6	6.9	5.1	7.8	7.8
Deflation Discrepancy	.1	.1	.01	-.1	-	-.1	-3.5	-4.6	-5.9	-5.0

Table II

INDUSTRIAL ORIGIN OF GROSS DOMESTIC PRODUCT AT CURRENT FACTOR COST

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Agriculture, Forestry, Hunting and Fishing	25.1	24.8	27.9	28.8	32.5	37.4	55.3	105.5 (10.5)	122.2 (12.1)	184.5 (18.3)
2. Mining and Quarrying	.3	.3	.4	.3	.3	.3	.4	1.2	.8 (.2)	.9 (.3)
3. Manufacturing	7.9	8.7	9.1	10.3	11.1	13.8	17.8	19.6	16.1 (1.2)	20.9 (1.6)
4. Construction	1.2	1.1	1.1	1.3	1.4	1.8	3.5	3.1	5.3 (.8)	4.4 (.6)
5. Electricity, Gas, and Water	.6	.7	.8	.9	1.5	1.2	1.0	1.1	2.4 (.7)	3.3 (1.0)
6. Transport, Storage, and Communication	3.6	4.0	4.1	4.0	4.5	6.1	8.3	12.6	14.7 (1.8)	24.0 (2.9)
7. Wholesale and Retail Trade	7.5	7.8	9.6	10.3	12.0	14.4	27.9	42.2 (.9)	43.6 (1.0)	63.4 (1.4)
8. Banking, Insurance, and Real Estate	.8	.8	.9	1.0	1.2	1.6	3.6	6.1	5.3 (.7)	6.7 (.9)
9. Ownership of Dwellings	5.6	5.5	6.1	6.3	6.9	7.6	12.3	14.2	22.0 (1.7)	26.1 (2.1)
10. Public Administration and Defense	11.6	12.6	16.2	17.6	21.4	30.1	47.2	63.5	94.1 (8.5)	108.5 (9.7)
11. Services	4.7	5.0	5.5	6.0	6.8	8.0	13.4	21.8	27.1 (1.1)	33.4 (1.4)
Statistical Discrepancy	4.4	2.8	1.5	1.9	.8	5.9	2.8	8.9 (5.9)	10.8 (7.1)	14.6 (9.6)
Gross Domestic Product at Factor Cost	73.4	74.2	83.3	88.7	100.4	128.3	193.6	299.8 (12.0)	364.5 (16.8)	490.8 (23.3)
Maximum Addition to Wholesale and Retail Trade and to Gross Domestic Product	13.8	16.3	8.1	11.1	17.4	25.6	39.3	23.0	35.4	85.1
Minimum Addition to Wholesale and Retail Trade and to Gross Domestic Product	3.7	4.8	.9	.1	.5	1.8	6.3	1.4	6.5	11.3

Table IIa

INDUSTRIAL ORIGIN OF GROSS DOMESTIC PRODUCT AT CONSTANT FACTOR COST

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Agriculture, Forestry, Hunting, and Fishing	36.1	28.1	31.0	28.6	32.5	30.7	29.5	30.0 (3.0)	29.2 (2.9)	33.2 (3.3)
2. Mining and Quarrying	.3	.3	.4	.3	.3	.3	.2	.4	.2 (.1)	.2 (.1)
3. Manufacturing	9.9	9.9	9.7	10.5	11.1	13.2	15.2	15.4	9.9 (.8)	11.0 (.8)
4. Construction	1.4	1.3	1.3	1.3	1.4	1.6	1.9	1.1	1.5 (.2)	1.0 (.2)
5. Electricity, Gas, and Water	.7	.8	.9	.9	1.5	1.1	.8	.6	1.3 (.4)	1.6 (.5)
6. Transport, Storage, and Communication	4.3	4.6	4.6	4.2	4.5	5.2	4.4	4.7	4.3 (.5)	5.7 (.7)
7. Wholesale and Retail Trade	8.8	8.8	10.4	10.5	12.1	12.5	15.3	16.6 (.4)	13.5 (.3)	16.4 (.4)
8. Banking, Insurance and Real Estate	1.0	.9	.9	1.1	1.2	1.4	2.0	2.4	1.6 (.2)	1.7 (.2)
9. Ownership of Dwellings	6.6	6.2	6.5	6.5	6.9	6.6	6.7	5.6	6.8 (.5)	6.8 (.5)
10. Public Administration and Defense	13.4	14.2	17.6	18.5	21.4	27.0	35.1	37.1	52.5 (4.7)	53.9 (4.8)
11. Services	5.7	5.6	6.1	6.2	6.8	6.9	7.1	8.0	7.9 (.3)	8.0 (.3)
Statistical Discrepancy	5.6	3.1	1.7	1.9	.8	5.2	1.7	3.7 (2.5)	3.9 (2.6)	4.3 (2.8)
Gross Domestic Product at Factor Cost	93.9	83.7	91.2	90.4	100.4	111.4	118.9	125.7 (3.9)	132.7 (6.2)	143.9 (6.7)
Maximum Addition to Wholesale and Retail Trade and to Gross Domestic Product	16.6	18.5	8.9	11.4	17.4	22.1	21.1	8.6	10.5	20.8
Minimum Addition to Wholesale and Retail Trade and to Gross Domestic Product	4.4	5.4	- 1.0	- .1	.5	1.5	3.3	.5	1.9	2.8

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Table III

DISTRIBUTION OF THE NATIONAL INCOME

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Compensation of Employees	33.1	35.0	39.8	41.9	47.9	65.2	123.2	169.2	207.4 (9.7)	264.6 (12.0)
2. Income from Unincorporated Enterprises	23.8	24.5	29.6	32.0	36.4	45.2	58.6	108.2 (13.4)	120.9 (20.9)	178.1 (28.3)
3. Income from Property	4.8	4.7	5.2	5.4	6.2	6.8	10.7	12.1	19.1 (1.8)	22.5 (2.1)
4. Corporate Transfer Payments										
5. Saving of Corporations	2.1	2.0	1.5	1.9	3.4	3.0	7.0	9.0	7.2 (2.2)	9.5 (3.4)
6. Direct Taxes on Corporations	.6	.6	.5	.6	.6	.7	1.0	2.0	3.1 (.4)	3.0 (.4)
7. General Government Income from Property and Entrepreneurship	.01	.01	.001	.01	.01	.01	.04	.02	.01 (.01)	.01 (.01)
8. Less Interest on the Public Debt	- .1	- .1	- .1	- .1	- .1	- 1.1	- 1.0	- .9	- 1.2 (.1)	- 1.4 (.1)
9. Less Interest on Consumers' Debt	-	-	-	-	-	-	-	-	-	-
Statistical Discrepancy	4.4	2.8	1.5	1.9	.8	5.9	2.8	8.9 (5.9)	10.8 (7.1)	14.6 (9.6)
National Income	68.7	69.5	78.0	83.5	95.2	125.8	202.4	308.6 (12.1)	367.4 (16.8)	491.0 (23.4)
Maximum Addition to Income from Unincorporated Enterprises and to National Income	13.8	16.3	8.1	11.1	17.4	25.6	39.3	23.0	35.4	85.1
Minimum Addition to Income from Unincorporated Enterprises and to National Income	3.7	4.8	- .9	- .1	.5	1.8	6.3	1.4	6.5	11.3

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Table IV

THE FINANCE OF GROSS DOMESTIC CAPITAL FORMATION

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Provisions for the Consumption of Fixed Capital	3.9	3.9	4.7	4.7	4.7	5.1	8.6	13.1 (1.0)	15.9 (1.4)	22.5 (2.1)
2. Saving	6.9	1.2	1.9	2.7	5.6	15.4	41.7	42.2 (18.9)	37.2 (36.1)	29.1 (47.0)
A. General Government	1.0	.7	- 1.0	- .8	- 3.5	- 9.8	-16.1	- 1.9	-42.7 (14.5)	-20.1 (17.2)
B. Public Corporations	2.1	2.0	1.5	1.9	3.4	3.0	7.0	9.0	7.2 (2.2)	9.5 (3.4)
C. Private Corporations										
D. Households and Private Nonprofit Institutions	3.8	- 1.5	1.4	1.6	5.7	22.2	50.8	35.1 (18.9)	72.7 (33.0)	39.8 (43.6)
3. Deficit of the Nation on Current Account	- .4	2.4	2.8	.2	2.4	- 3.1	-15.8	-10.1	- 2.4	8.3
Gross Domestic Capital Formation	10.3	7.5	9.4	7.6	12.7	17.4	34.5	45.1 (19.0)	50.7 (36.1)	59.8 (47.0)
Maximum Additions to:										
Saving of Households	2.0	1.8	.5	- .4	- 1.2	- 1.0	- 8.0	.9	- 2.6	5.4
Minimum Additions to:										
Saving of Households	.3	.3	- .6	- 1.3	- 2.8	- 3.2	-11.6	- 1.9	- 4.6	- 1.7
Additions to:										
Saving of General Government	- .02	- .02	- .02	- .2	- .1	- .4	- 1.2	- 7.2	- 2.2	- 8.7
Deficit of the Nation on Current Account	.4	.4	.5	1.6	3.0	3.7	13.5	9.3	7.2	11.5

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Table V

COMPOSITION OF GROSS DOMESTIC FORMATION

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Fixed Capital Formation	6.6	6.8	8.7	8.1	9.2	12.3	27.5	35.1	38.4 (3.5)	41.7 (3.9)
A. Land					-	-	-	-	-	-
B. Dwellings										
C. Non-Residential Buildings										
D. Other Construction ^a and Works	2.7	2.8	2.7	2.8	3.1	4.2	8.4	7.6	11.6 (1.5)	9.6 (1.3)
E. Transport Equipment	.9	.8	1.3	1.3	1.7	2.2	6.3			
F. Machinery and Other Equipment	2.9	3.1	4.7	4.0	4.3	5.8	12.8	27.4	26.8 (3.1)	32.1 (3.7)
2. Increase in Stocks ^b	3.7	.7	.8	-.5	3.6	5.1	7.0	10.1	12.2 (1.1)	18.2 (1.6)
Gross Domestic Capital Formation	10.3	7.5	9.4	7.6	12.7	17.4	34.5	45.2	50.7 (3.6)	59.8 (4.2)
Maximum additions to:										
Gross Domestic Fixed Capital Formation, Transport Equipment and Machinery, and to Gross Domestic Capital Formation	2.4	2.2	1.0	.9	1.7	2.3	4.3	3.0	2.5	8.2
Minimum additions to:										
Gross Domestic Fixed Capital Formation, Transport Equipment and Machinery, and to Gross Domestic Capital Formation	.6	.6	-.1	-.009	-.05	.2	.7	.2	.5	1.1

a. No estimates are made for private rural construction and works.

b. Increases in stocks of rice, rubber, and livestock only for 1960-1963. For 1964-1969, includes increases in industrial stocks.

Table VI

RECEIPTS AND EXPENDITURES OF HOUSEHOLDS AND PRIVATE NONPROFIT INSTITUTIONS

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Compensation of Employees	33.1	35.0	39.8	41.9	47.9	65.2	123.2	169.2	207.4 (9.7)	264.6 (12.0)
2. Income from Property and Entrepreneurship	28.6	29.3	34.7	37.4	42.6	52.0	69.3	120.3 (13.4)	140.0 (20.9)	200.6 (28.4)
3. Less Interest on Consumers' Debt	-	-	-	-	-	-	-	-	-	-
4. Current Transfers from General Government	.2	.3	.3	.3	.5	1.0	2.8	1.2	2.6 (1.7)	3.0 (1.9)
5. Current Transfers from the Rest of the World	1.6	1.6	3.2	5.7	7.1	7.8	31.6	32.2	33.9 (1.2)	33.0 (1.4)
Statistical Discrepancy	4.4	2.8	1.5	1.9	.8	5.9	2.8	8.9 (5.9)	10.8 (7.1)	14.6 (9.6)
Income	67.9	68.9	79.6	87.2	98.9	131.9	229.8	331.8 (14.7)	394.8 (24.2)	515.9 (32.4)
6. Consumption Expenditure	63.7	70.0	77.8	84.8	92.4	108.9	177.0	287.9 (12.0)	316.1 (22.4)	465.6 (29.2)
7. Direct Taxes	.2	.2	.2	.3	.3	.2	.4	.9	1.2 (.2)	1.2 (.2)
8. Other Current Transfers to General Government	.1	.1	.1	.2	.4	.2	.2	.5	.2 (.2)	.2 (.2)
9. Current Transfers to the Rest of the World	.1	.1	.1	.3	.2	.5	1.4	7.3	4.6	9.1
Expenditures	64.0	70.3	78.2	85.6	93.2	109.8	179.0	296.7 (12.0)	322.1 (22.4)	476.1 (29.2)
10. Saving	3.8	-1.5	1.4	1.6	5.7	22.2	50.8	35.1 (18.9)	72.7 (33.0)	39.8 (43.6)
Maximum Additions to:										
Income from Property and Entrepreneurship	13.8	16.3	8.1	11.1	17.4	25.6	39.3	23.0	35.4	85.1
Income	12.5	15.0	5.5	6.3	11.5	19.0	9.1	- 8.1	6.0	54.6
Private Consumption Expenditures	10.5	13.2	5.1	6.9	12.7	20.4	18.3	- 1.9	10.7	58.0
Expenditures	10.5	13.2	5.1	6.7	12.6	20.0	17.1	- 9.0	8.6	49.2
Saving	2.0	1.8	.5	- .4	- 1.2	- 1.0	- 8.0	.9	- 2.6	5.4
Minimum Additions to:										
Income from Property and Entrepreneurship	3.7	4.8	- .9	- .1	.5	1.8	6.3	1.4	6.5	11.3
Income	2.4	3.5	- 3.5	- 4.9	- 5.5	- 4.8	-23.9	-29.7	-22.9	-19.1
Private Consumption Expenditures	2.1	3.2	- 2.9	- 3.3	- 2.5	- 1.2	-11.1	-20.6	-16.2	- 8.7
Expenditures	2.1	3.2	- 2.9	- 3.6	- 2.6	- 1.6	-12.2	-27.8	-18.4	-17.5
Saving	.3	.3	- .6	- 1.3	- 2.8	- 3.2	-11.6	- 1.9	- 4.6	- 1.7
Additions to Current Transfers:										
To the Rest of the World	- .02	- .02	- .02	- .2	- .1	- .4	- 1.2	- 7.2	- 2.2	- 8.7
From the Rest of the World	- 1.3	- 1.3	- 2.6	- 4.8	- 5.9	- 6.6	-30.2	-31.1	-29.4	-30.4

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Table VIII

GENERAL GOVERNMENT REVENUE AND EXPENDITURE

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Income from Property and Entrepreneurship	.01	.01	.01	.01	.01	.01	.04	.02	.01 (.01)	.01 (.01)
2. Less Interest on the Public Debt	-.1	-.1	-.1	-.1	-.1	-1.1	-1.0	-.9	-1.2 (.1)	-1.4 (.1)
3. Indirect Taxes	9.5	11.4	11.5	12.2	14.7	14.5	25.6	44.7	48.5 (4.0)	85.9 (6.1)
4. Direct Taxes on Corporations	.6	.6	.5	.6	.6	.7	1.0	2.0	3.1 (.4)	3.0 (.4)
5. Direct Taxes on Households and Private Nonprofit Institutions	.2	.2	.2	.3	.3	.2	.4	.9	1.2 (.2)	1.2 (.2)
6. Other Current Transfers from Households and Private Nonprofit Institutions	.1	.1	.1	.2	.4	.2	.2	.5	.2 (.2)	.2 (.2)
7. Current Transfers from the Rest of the World	5.2	4.3	7.2	7.5	6.5	9.8	13.8	25.7	18.4 (1.2)	21.1 (1.4)
Current Revenue	15.5	16.5	19.5	20.7	22.3	24.4	39.9	73.0	70.2 (4.2)	110.0 (6.3)
8. Consumption Expenditure	14.0	15.2	19.7	21.0	25.0	32.5	52.9	73.5	109.9 (13.8)	126.8 (15.9)
A. Civil	8.5	9.2	10.2	11.5	13.1	12.1	15.1	25.9	-	-
B. Defense	5.5	6.0	9.5	9.5	12.0	20.5	37.8	47.6	-	-
9. Subsidies	.3	.3	.5	.1	.2	.7	.3	.2	.3 (.2)	.3 (.2)
10. Current Transfers to Households and Private Nonprofit Institutions	.2	.3	.3	.3	.5	1.0	2.8	1.2	2.6 (1.7)	3.0 (1.9)
11. Current Transfers to the Rest of the World	-	-	.1	.03	.05	.02	.04	.1	.04 (.04)	.04 (.04)
Current Expenditure	14.6	15.8	20.6	21.5	25.8	34.2	56.1	75.0	112.9 (13.9)	130.1 (16.0)
12. Saving	1.0	.7	-1.1	-.8	-3.5	-9.8	-16.1	-1.9	-42.7 (14.5)	-20.1 (17.2)
Additions to:										
Current Transfers from Rest of World	.9	.9	2.1	3.2	3.0	2.9	16.7	21.8	22.2	19.0
Current Revenue	.9	.9	2.1	3.2	3.0	2.9	16.7	21.8	22.2	19.0
Consumption Expenditures	.9	.9	2.1	3.2	3.0	2.9	16.7	21.8	22.2	19.0
Transfers to Rest of World	.02	.02	.02	.2	.1	.4	1.2	7.2	2.2	8.7
Current Expenditure	1.0	.9	2.1	3.5	3.1	3.3	17.8	29.0	24.4	27.7
Saving	-.02	-.02	-.02	-.2	-.1	-.4	-1.2	-7.2	-2.2	-8.7

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Table X

EXTERNAL TRANSACTIONS

	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
1. Exports of Goods and Services	6.1	5.0	5.3	8.4	7.8	12.0	30.5	42.5	35.9	42.3
A. Merchandise	4.5	3.6	2.9	5.0	2.9	2.7	2.2	4.3	4.9	4.5
B. Other	1.7	1.4	2.4	3.4	4.8	9.4	28.3	38.1	31.0	37.8
2. Factor Income from the Rest of the World	.2	.3	.2	.4	.2	3.8	18.6	23.7	21.0	25.2
3. Current Transfers from the Rest of the World	6.8	5.9	10.5	13.2	13.5	17.6	45.4	57.9	52.3	54.0
Current Receipts from the Rest of the World	13.1	11.3	16.0	22.0	21.5	33.3	94.5	124.1	109.1	121.6
4. Imports of Goods and Services	11.6	12.5	17.9	21.0	23.0	28.6	76.0	104.7	100.0	118.2
A. Merchandise ^a	10.5	11.3	16.1	19.0	20.0	24.8	66.8	88.9	82.7	98.9
B. Other	1.1	1.3	1.8	2.0	3.0	3.8	9.3	15.8	17.3	19.3
5. Factor Income Paid to the Rest of the World	1.1	1.0	.8	.8	.7	1.2	1.3	1.9	2.2	2.5
6. Current Transfers to the Rest of the World	.1	.1	.2	.3	.2	.5	1.4	7.4	4.6	9.1
Current Payments to the Rest of the World	12.7	13.6	18.8	22.2	23.9	30.3	78.7	114.0	106.8 (.03)	129.8 (.03)
7. Surplus of the Nation on Current Account	.4	- 2.4	- 2.8	- .2	- 2.4	3.1	15.8	10.1	2.4	- 8.3
Additions to Current Transfers from the Rest of the World	- .4	- .4	- .5	- 1.6	- 3.0	- 3.7	-13.5	- 9.3	- 7.2	-11.5
a) To Households and Private Nonprofit Institutions	- 1.3	- 1.3	- 2.6	- 4.8	- 5.9	- 6.6	-30.2	-31.1	-29.4	-30.4
b) To General Government	.9	.9	2.1	3.2	3.0	2.9	16.7	21.8	22.2	19.0
Addition to Current Transfers to the Rest of the World	0	0	0	0	0	0	0	0	0	0
a) From Households and Private Nonprofit Institutions	- .02	- .02	- .02	- .2	- .1	- .4	- 1.2	- 7.2	- 2.2	- 8.7
b) From General Government	.02	.02	.02	.2	.1	.4	1.2	7.2	2.2	8.7
Addition to Current Receipts from the Rest of the World and to Surplus of the Nation on Current Account	- .4	- .4	- .5	- 1.6	- 3.0	- 3.7	-13.5	- 9.3	- 7.2	-11.5

a. . CIF - charges including freight and insurance

B. A COMPARISON OF THE NATIONAL BANK AND IDA ESTIMATES

The National Bank of Vietnam has prepared both current and constant price estimates of gross national product by expenditure for 1967 through 1969.⁴ As shown in Table 16, our estimates of current gross national product are progressively higher than those of the National Bank, increasing from 1 percent to 11 percent, but they are comparable for 1967 and 1968 when the standard deviations are taken into account.⁵ The largest absolute annual variations among current individual entries did not occur consistently in any one account, they ranged from exports in 1967 to public consumption in 1968 to private consumption expenditures in 1969. Generally, the current accounts that are taken from the External Transactions Table (i.e., exports, imports, and net factor income) had the smallest absolute differences due to the fact that these estimates were based on up-to-date balance-of-payments data. Obviously, the veracity of our estimating techniques for these few current national income components cannot be ascertained by comparing our estimates to those of the National Bank, which are also subject to estimating errors, rather it must come by measuring them to official national income statistics when they appear.

Due to the variation among the various components in current terms, plus the different price deflators used by IDA and the Bank in selected instances, absolute differences naturally resulted in terms of constant prices. Frequently, the IDA estimates were the higher of the two. However, in no year did the standard deviations compensate for the differences in gross national product estimates, at constant prices.

4. A report by the Joint Development Group estimates the 1969 GNP as ranging from 380.3Đ to 391.9Đ (million). This is substantially lower than both the current 1968 and 1969 estimates by the National Bank and IDA. See The Postwar Development of the Republic of Vietnam: Policies and Programs, Vol. 1, March 1969, p. 8.

5. None of the estimates vary by more than three standard deviations.

Table 16

COMPARISON OF NATIONAL BANK OF VIETNAM AND IDA ESTIMATES, 1967-1969^a
(Billions of Piasters)

	Current Prices						Constant Prices ^b					
	1967		1968		1969		1967		1968		1969	
	Bank	IDA	Bank	IDA	Bank	IDA	Bank	IDA	Bank	IDA	Bank	IDA
Private Consumption Expenditures	204.0	287.9 (12.0)	334.0	316.1 (22.4)	428.0	465.6 (29.2)	105.8	108.4 (4.5)	97.7	93.8 (6.6)	102.6	114.1 (7.2)
Public Consumption Expenditures	75.3	72.5	88.0	109.9 (13.8)	115.0	126.8 (15.9)	44.0	42.9	49.1	61.3 (7.7)	57.1	62.9 (7.9)
Gross Capital Formation	40.0	45.2	40.0	50.7 (3.6)	45.0	59.8 (4.2)	20.6	27.5	20.5	27.6 (1.9)	20.3	28.7 (2.0)
Exports, Goods, and Non-Factor Services	33.7	42.5	34.0	35.9	40.0	42.3	21.3	18.9	12.7	14.2	12.2	14.2
Less Imports-Goods and Non-Factor Services	-110.7	-104.7	-102.0	-100.0	-121.0	-118.2	-76.1	-53.3	-65.1	-48.2	-64.6	-54.5
Non-Factor Income	20.0	21.8	20.0	18.8	25.0	22.7	7.7	8.4	8.5	8.0	7.2	6.5
Gross National Product	362.3	366.1 (12.0)	414.0	431.4 (17.2)	532.0	599.1 (24.1)	123.2	152.6 (4.5)	123.4	156.8 (6.3)	134.8	172.0 (6.9)

/28.3

- a. Source: Tables I and Ia and National Bank estimates of Tables I and Ia. None of the IDA figures include the minimum or maximum additions.
- b. National Bank figures converted from 1960 base period to 1964 base period prices.

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Appendix
DERIVATION TABLES

Appendix

DERIVATION TABLES

A description of the specific means employed to estimate any given entry of the accounts may be found in the tables that follow. These tables are arranged in the same sequence as the formal presentation of the accounts and use numbers conforming to the tables in Section V. Since the national income and product accounts comprise a conceptually complete system, many entries appear in more than one table. Wherever this occurs the description of the derivation of an estimate is shown in only one of the tables. Elsewhere, the entry is noted and a cross reference to its description is provided.

The treatment of each entry is patterned as follows:

- ENTRY : The identification of the entry.
- DERIVATION: A description of the means used to estimate the entry for the years 1968 and 1969 and, if it was missing, for the year 1967.
- INDEX : (Applies only for statistical estimates.) A description of the index, X , used to derive a statistical estimate of the entry.
- ESTIMATES : (Applies only for statistical estimates.) Estimates of the mean value, μ , and standard deviation, σ , of the ratio Y/X . If the variable, Y , is not the account entry proper, but, rather, some related quantity, it is described. Also shown are the Durbin-Watson statistic, d , and the mean values of the ratio Y/X for the first and second halves of the observations, denoted R_1 and R_2 respectively.
- COMMENT : Comments (where necessary) on the specific means employed to estimate the entry.

Table A-I

DERIVATION OF GROSS NATIONAL PRODUCT ACCOUNT

1. ENTRY : Private consumption expenditures.
DERIVATION: Balance entry.
2. ENTRY : General Government consumption expenditures.
DERIVATION: See Table VIII.
3. ENTRY : Gross Domestic Fixed Capital Formation.
DERIVATION: See Table V.
4. ENTRY : Increase in Stocks.
DERIVATION: See Table V.
5. ENTRY : Exports of goods and nonfactor services.
DERIVATION: See Table X.
6. ENTRY : Imports of goods and nonfactor services.
DERIVATION: See Table X.

ENTRY : Expenditure on Gross Domestic Product.
DERIVATION: See Table II.
7. ENTRY : Net factor income from the rest of the world.
DERIVATION: Factor income from rest of world less factor income paid to the rest of the world.
- 7A. ENTRY : Factor income from rest of world.
DERIVATION: See Table X.
- 7B. ENTRY : Factor income paid to the rest of world.
DERIVATION: See Table X.

ENTRY : Expenditure on gross national product.
DERIVATION: Gross domestic product and net factor income.
8. ENTRY : Indirect taxes.
DERIVATION: See Table VIII.
9. ENTRY : Subsidies.
DERIVATION: See Table VIII.
10. ENTRY : Provision for consumption of fixed capital.
DERIVATION: See Table IV.

ENTRY : Net national product at factor cost.
DERIVATION: Gross national product
less indirect taxes plus subsidies
less provision for consumption of fixed capital.

Table A-II

DERIVATION OF GROSS DOMESTIC PRODUCT ACCOUNT

1. ENTRY : Agriculture, animal husbandry, forestry, fishing.
DERIVATION: Statistical estimate.
INDEX : Product of an agriculture price index constructed as follows: Wholesale price of pigs, 1964 = 1.0 (Weights are based on 1964 output quantities), and value of agricultural output in 1964 prices;
Source: Monthly Bulletin of Statistics and USAID submissions to Senate Foreign Relations Committee; February 1970.
ESTIMATES : $\hat{\mu} = .847$, $\hat{\sigma} = .084$, $d = 1.58$, for the years 1960-1966.
 $R_1 = .872$, $R_2 = .822$.
COMMENT : This industry makes the largest single contribution to gross domestic product so a considerable effort was made to construct the best possible index. The USAID estimates of the value of agricultural output appeared to be fairly inclusive and more reliable than any of the agricultural output indices in the Monthly Bulletin of Statistics. Finding an acceptable price index presented a small problem. An index based on the wholesale price of rice and paddy in Saigon was tried as was a weighted average of this index and the price of pigs. The price index we have chosen provided statistically superior results.
2. ENTRY : Mining, quarrying.
DERIVATION: Statistical estimate.
INDEX : Wholesale price index of local products, 1959 = 1.00.
Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = .276$, $\hat{\sigma} = .087$, $d = 1.33$.
 $R_1 = .269$, $R_2 = .283$.
COMMENT : We were unable to find a satisfactory output index for the very small mining and quarrying industry. Much of the industry's production consists of the output of salt from marshes which has fluctuated markedly over the past ten years. About all we could do was compensate for inflation by relating the current value of output to the wholesale price index for local products.

Table A-II (cont'd)

3. ENTRY : Manufacturing.
DERIVATION: Statistical estimate.
INDEX : Index of industrial production for manufacturing industry, 1962 = 1.0. Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = 9.247$, $\hat{\sigma} = .703$, $d = 1.05$
 $R_1 = 9.126$, $R_2 = 9.367$
COMMENT : The index of industrial production for manufacturing industry was the obvious choice for a real output measure. Our attempts to marry this quantity index with a price index were unsuccessful. Every reasonable possibility was tried with the same result, a ratio Y/X that uniformly decreased over time. The best statistical results were obtained by using the index of industrial production alone.
4. ENTRY : Construction.
DERIVATION: Statistical estimate.
INDEX : Product of wholesale price index of local products, 1959 = 1.0, and production plus imports of cement in metric tons lagged one year. Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = .00284$, $\hat{\sigma} = .00042$, $d = 1.13$
 $R_1 = .00300$, $R_2 = .00268$
COMMENTS : Most construction in South Vietnam requires cement. On the assumption that there is a one year lag between input and output, we chose production plus imports of cement lagged one year. This quantity index was more appealing than any other indirect measure of construction activity that we could find in the published statistics. The wholesale price index for local products provided a satisfactory compensation for inflation.
5. ENTRY : Electricity, water, gas.
DERIVATION: Statistical estimate.
INDEX : Product of average retail price of electricity per kilowatt hour, and electricity production in South Vietnam in thousands of kilowatt hours. Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = .00164$, $\hat{\sigma} = .00050$, $d = 0.90$
 $R_1 = .00180$, $R_2 = .00149$
COMMENT : Electrical output is the major item for this industry. The retail price of electricity times reported electrical production was an obvious and satisfactory choice of an index.

Table A-II (Cont'd)

6. ENTRY : Transport, storage, and communication.
DERIVATION: Statistical estimate.
INDEX : Product of wholesale price index of local products, 1959 = 1.0, and estimate domestic automotive consumption of petroleum fuels in thousands of metric tons as follows: Civilian sales of aviation gasoline + Civilian sales of motor vehicle gasoline + .54 x Civilian sales of diesel oil. Source: Monthly Bulletin of Statistics. Note: .54 = automotive/Total sales of diesel oil in 1966.
ESTIMATES : $\hat{\mu} = .01447$, $\hat{\sigma} = .00177$, $d = 1.76$
 $R_1 = .01446$, $R_2 = .01447$
COMMENT : Transportation by road has been the major component of this industry's output since 1960. Since 1963 the contribution of water and rail transportation has been minor. An indirect measurement of activity on South Vietnam's highways, waterways, and airways is provided by the annual domestic consumption of automotive fuels. These data exist and have been combined with the wholesale price of local products to obtain a suitable index.
7. ENTRY : Wholesale and retail trade.
DERIVATION: Statistical estimate.
INDEX : Domestic retail sales of goods in billions of piasters as follows:
Gross domestic product of agriculture, mining and manufacturing
+ Imports of goods (CIF)
+ Taxes on imports (Customs and perequation taxes on imports)
- Exports of goods (FOB)
Sources: Monthly Bulletin of Statistics, Balance of Payments, and data supplied by Mr. Nguyen Uyen of the Joint USAID/Embassy Economic Office, Saigon.
ESTIMATES : $\hat{\mu} = .180$, $\hat{\sigma} = .004$, $d = 1.23$, for the years 1960-1966. $R_1 = .177$, $R_2 = .182$.
COMMENT : Value added in wholesale and retail trade represents merchants' markups on goods in domestic trade. Our statistical estimates are based on the assumption that these markups are a constant fraction of the value of goods sold in country. This approach yields estimates that are too good to believe. It appears that the National Bank estimates domestic product from wholesale and retail trade in about the same way.

Table A-II (cont'd)

8. ENTRY : Banking, insurance, and real estate.
DERIVATION: Statistical estimate.
INDEX : Commercial bank assets in billions of piasters.
Source: Monthly Bulletin of Statistics.
ESTIMATES: $\hat{\mu} = .101$, $\hat{\sigma} = .013$, $d = 0.85$.
 $R_1 = .098$, $R_2 = .105$.
COMMENT : Wages, salaries, and profits from commercial banking are virtually the only significant components of the gross domestic product of this industry. These returns to commercial banking in Saigon can be successfully related to aggregate commercial bank assets as reported monthly by the National Bank.
9. ENTRY : Ownership of dwellings.
DERIVATION: Statistical estimate.
INDEX : Consumer price index in Saigon (middle class without rent 1959 = 1.00). Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = 5.388$, $\hat{\sigma} = .427$, $d = 1.24$.
 $R_1 = 5.486$, $R_2 = 5.291$.
COMMENT : Value added from ownership of dwellings includes not only actual rents but imputed rents from owner-occupied dwellings. No direct or acceptable indirect measures of the number of dwellings or their occupancy exists in the body of published statistics for South Vietnam. However, it is probable that the number of occupied dwellings has not changed markedly over the last decade. On this basis value added from ownership of dwellings was related only to the middle-class consumer price index without rent. Although an index of rental rates on dwellings in Saigon is available, we chose not to use it. These rates, it appears, are decreed by the government but not effectively enforced in the market.
10. ENTRY : Public administration and defense.
DERIVATION: Statistical estimate.
INDEX : Estimated total GVN expenditures in billions of piasters as follows: Total actual revenues for the calendar year + change in claims net on public sector. Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = .790$, $\hat{\sigma} = .071$, $d = 3.04$.
 $R_1 = .790$, $R_2 = .791$.
COMMENT : Wages and salaries are used in national income accounting as the measure of the domestic products that originates in government. The government of South Vietnam typically receives most of the goods

Table A-II (Cont'd)

10. COMMENT : and non-factor services it needs in the form of military transfers from the United States. Our statistical estimate is based on the assumption that wage and salary payments are a stable fraction of total government expenditures. Total expenditures are measured indirectly as the sum of actual revenues and the increased indebtedness of the public sector. Monthly data had to be summed to annual totals for most years because of the complementary five months of the South Vietnamese fiscal year.
11. ENTRY : Services.
 DERIVATION: Statistical estimate.
 INDEX : Product of consumer price index in Saigon (working class without rent, 1959 = 1.0), and estimated population in millions. Sources: Monthly Bulletin of Statistics and Annual Statistical Bulletin, No. 11. 1968 - 1969: Population figures were extrapolated using 2.6 percent annual rate of population growth.
- ESTIMATES : $\hat{\mu} = .345$, $\hat{\sigma} = .014$, $d = 1.81$.
 $R_1 = .336$, $R_2 = .354$
- COMMENT : "Services" is the national accounting euphemism for everything not included elsewhere. There is no good output index for this mélange. Our use of the estimated population has all sorts of obvious defects not the least of which is the fact that services performed for US personnel are implicitly omitted. Since most services are performed by the working class, we compensated for inflation with a working class price index in the hope that it would reflect working class wages.
- ENTRY : Statistical discrepancy.
 DERIVATION: Statistical estimate.
 INDEX : Subtotal of gross domestic product by industry for all industries in billions of piasters.
- ESTIMATES : $\hat{\mu} = .031$, $\hat{\sigma} = .020$, $d = 1.64$, for the years 1960-1966. $R_1 = .038$, $R_2 = .024$.
- COMMENT : Our treatment of balance items in the accounts (described in Section II) makes it necessary to obtain an independent estimate of the statistical discrepancy. We were tempted to simply set the statistical discrepancy to zero. However, past values reveal a persistent positive bias and so the statistical discrepancy was related to gross domestic product (without the statistical discrepancy) in an effort to avoid biasing our estimates.
- ENTRY : Gross domestic product at factor cost.
 DERIVATION: The sum of gross domestic product at factor cost by industrial origin plus the statistical discrepancy.

Table A-III

DERIVATION OF NATIONAL INCOME ACCOUNT

1. ENTRY : Compensation of employees.
DERIVATION: See Table VI.
2. ENTRY : Income from unincorporated enterprises.
DERIVATION: Balance entry.
- 3 & 4. ENTRY : Income from property and corporate transfer payments.
DERIVATION: Gross domestic product from ownership of dwellings (Table II) - capital consumption of dwellings (Table IV).
5. ENTRY : Saving of corporations.
DERIVATION: Statistical estimate.
INDEX : Wholesale price index of local products, 1959 = 1.0.
Source: Monthly Bulletin of Statistics.
ESTIMATES : A dependent variable, Y, was constructed as follows:
Saving of corporations - Change in commercial bank capital accounts + Change in commercial bank stock subscribed + 2.3 x Payments for capital services to rest of world. Sources: Monthly Bulletin of Statistics, Statistical Yearbook 1969-1970, Balance of Payments.
Note: 2.3 approximately equals the ratio of total payments for capital services by corporations as estimated from dividend tax collections to that part of the payments made to the rest of the world.
 $\hat{\mu} = 3.542$, $\hat{\sigma} = .774$, $d = 1.01$
 $R_1 = 2.990$, $R_2 = 4.094$
COMMENT : Saving by banks (change in capital account minus stock subscribed) may be inferred from published data on commercial banks. The dependent variable, Y, represents an attempt to construct an earnings series for nonbank corporations served by adding estimated dividends to the savings of these corporations. The resultant series formed an acceptably stable ratio over time with the wholesale price index of local products. Other attempts were made to relate saving of corporations to stock issue data and to dividend tax collections. These attempts all failed.
6. ENTRY : Direct taxes on corporations.
DERIVATION: See Table VIII.
7. ENTRY : General government income from property and entrepreneurship.
DERIVATION: See Table VIII.

Table A-III (Cont'd)

8. ENTRY : Interest on public debt.
DERIVATION: See Table VIII.

9. ENTRY : Interest on consumers' debt.
DERIVATION: See Table VI.

ENTRY : Statistical discrepancy.
DERIVATION: See Table II.

ENTRY : National income (net national product at factor
cost).
DERIVATION: See Table I.

Table A-IV

DERIVATION OF ACCOUNT FOR FINANCE OF GROSS DOMESTIC CAPITAL FORMATION

1. ENTRY : Provisions for the consumption of fixed capital.
 DERIVATION: Derived as the sum of statistical estimates of capital consumption by industries:

- agriculture, animal husbandry, forestry, fishing
- manufacturing
- electricity, water, and gas
- transportation
- ownership of dwellings
- all other industries (except construction and public administration and defense)

INDEX : Gross domestic product of each industry, see Table II.

ESTIMATES : By industry:

agriculture, animal husbandry, etc.*
 $\hat{u} = .047, \hat{\sigma} = .009, d = 1.16; R_1 = .051,$
 $R_2 = .042.$

manufacturing
 $\hat{u} = .062, \hat{\sigma} = .009, d = 0.94; R_1 = .055,$
 $R_2 = .068$

electricity, water, and gas
 $\hat{u} = .193, \hat{\sigma} = .002, d = 0.96; R_1 = .194,$
 $R_2 = .192$

transportation
 $\hat{u} = .151, \hat{\sigma} = .044, d = 0.60; R_1 = .180,$
 $R_2 = .121$

ownership of dwellings
 $\hat{u} = .136, \hat{\sigma} = .022, d = 1.08; R_1 = .150,$
 $R_2 = .108$

all other industries* (except construction and public administration and defense)
 $\hat{u} = .046, \hat{\sigma} = .005, d = 2.17; R_1 = .046,$
 $R_2 = .045$

* for the years 1960-1966.

COMMENT : In the absence of capital stock data, or even a decently long record of gross capital formation, there is little alternative to relating capital consumption to the rate at which output is produced. This is what we have done industry by industry. An obvious defect to the procedure is its failure to count the extraordinary losses due to the war in recent years (particularly 1968). We were unable to devise any reasonable procedures for estimating and incorporating these losses in the statistics.

Table A-IV (Cont'd)

2. ENTRY : Saving.
DERIVATION: Sum of saving by general government, public corporations, private corporations, households, and private nonprofit organizations.
- 2A. ENTRY : Saving of general government.
DERIVATION: See Table VIII.
- 2B & 2C
ENTRY : Saving of public and private corporations.
DERIVATION: See Table III.
- 2D. ENTRY : Saving of households and private nonprofit organizations.
DERIVATION: See Table VI.
3. ENTRY : Deficit of the nation on current account.
DERIVATION: See Table X.
- ENTRY : Gross domestic capital formation.
DERIVATION: See Table V.

Table A-V

DERIVATION OF DOMESTIC CAPITAL FORMATION ACCOUNT

1. ENTRY : Gross domestic fixed capital formation.
DERIVATION: Expenditures for vehicles, machinery and parts
+ Expenditures for buildings and works construction.

1A, 1B, 1C, and 1D

ENTRY : Expenditures for buildings, other construction works.

DERIVATION: Statistical estimate.

INDEX : Product of local products wholesale price index,
1959 = 1.0 and production and imports of cement in
metric tons, lagged one year. Source: Monthly
Bulletin of Statistics.

ESTIMATES : $\hat{\mu} = .0066$, $\hat{\sigma} = .0010$, $d = 1.03$,
 $R_1 = .0069$, $R_2 = .0062$

COMMENT : See comments on gross domestic product in construction.

1E and 1F

ENTRY : Expenditure for transport equipment, machinery, and
other equipment.

DERIVATION: Statistical estimate.

INDEX : Imports of goods, CIF, in billions of piasters. See
Table X.

ESTIMATES: $\hat{\mu} = .325$, $\hat{\sigma} = .037$, $d = 1.31$,
 $R_1 = .344$, $R_2 = .305$.

COMMENTS : Virtually all new equipment and machinery in South
Vietnam is imported. Our estimates are based on the
assumption that a fixed proportion of all imports of
goods will be capital equipment and machinery. An
attempt to sort capital imports from other imports
on the basis of customs and AID data was abandoned
as impractical.

Table A-V (Cont'd)

2. ENTRY : Increase in stocks.
DERIVATION: Statistical estimate.
INDEX : Gross domestic product in agriculture, animal husbandry, etc. + Gross domestic product in manufacturing. See Table II for gross domestic product by industrial origin.
ESTIMATES : $\hat{\mu} = .088$, $\hat{\sigma} = .008$, $d = 1.99$
 $R_1 = .089$, $R_2 = .088$
Note: Only observations for 1964-1967 were used. Prior years did not include industrial stocks.
COMMENT : A better case can be made for relating the increase in stocks to changes in the gross domestic production of goods than to levels of production. However, on the basis of the few usuable observations, the latter index provided a far better statistical fit.
- ENTRY : Gross domestic capital formation.
DERIVATION: Gross domestic fixed capital formation plus increase in stocks.

Table A-VI

DERIVATION OF RECEIPTS AND EXPENDITURES OF HOUSEHOLDS AND PRIVATE
NONPROFIT INSTITUTIONS

1. ENTRY : Compensation of employees.
 DERIVATION: The sum of compensations paid by industry plus net receipts from the rest of the world for labor factor services. For each industry, compensation of employees is estimated as a fixed fraction of the industry's gross domestic product:

agriculture, animal husbandry, etc.	.373
mining, quarrying	.681
manufacturing	.514
construction	.764
electricity, water, gas	.342
transportation	.211
wholesale and retail trade	.373
banking and insurance	.231
ownership of dwellings	---
public administration and defense	1.000
services	.569

Parameters for all but agriculture, etc., and wholesale and retail trade are computed as a product of the fraction of net domestic product in gross domestic product (1.0 estimated capital consumption fractions from Table IV) and the fraction of compensation of employees in net domestic product in 1967. A parameter for agriculture, animal husbandry, etc. and wholesale and retail trade was devised by applying the parameters for all other industries to the 1966 gross domestic product estimates, subtracting the result from compensation of employees in 1966 and obtaining the ratio of the remainder to the 1966 sum of gross domestic product in agriculture and trade. Net receipts from the rest of the world for labor services are obtained by deducting from net factor income the value in piasters of net income for capital services in the balance of payments. Sources: National Bank of Vietnam worksheets for 1967 accounts, Balance of Payments.

COMMENT : The data do not exist for a statistical estimation by industry, of compensation of employees. Since large changes in the composition of gross domestic product by industry appear to have occurred during the last several years, a statistical estimate of total wages and salaries using aggregate gross domestic product as an index would probably not be reliable. The only alternative appeared to be to examine the National Bank's worksheets

Table A-VI (Cont'd)

1. COMMENT : for the 1967 accounts to infer the fractions of net domestic product that took the form of wages and salaries for as many industries as possible. In the remaining industries, agriculture, etc. and trade, factor payments primarily take the form of income from unincorporated enterprises. A rough estimate of the fraction for these industries was obtained by using 1966 national income data as shown.
(cont'd)
2. ENTRY : Income from property and entrepreneurship.
DERIVATION: Income from unincorporated enterprises + Income from property and corporate transfer payments, see Table III.
3. ENTRY : Interest on consumers' debt.
DERIVATION: Negligible for all years.
4. ENTRY : Current transfers from general government.
DERIVATION: See Table VIII.
5. ENTRY : Current transfers from the rest of the world.
DERIVATION: Current transfers from the rest of the world (Table X)
- Current transfers from the rest of the world to general government (Table VIII).
- ENTRY : Statistical discrepancy.
DERIVATION: See Table II.
- ENTRY : Income.
DERIVATION: Compensation of employees plus income from property and entrepreneurship plus current transfers from general government and the rest of the world plus statistical discrepancy.
6. ENTRY : Consumption expenditure.
DERIVATION: See Table I.
7. ENTRY : Direct taxes.
DERIVATION: See Table VIII.
8. ENTRY : Other current transfers to general government.
DERIVATION: See Table VIII.
9. ENTRY : Current transfers to the rest of the world.
DERIVATION: Current transfers to the rest of the world (Table X)
- Current transfers to the rest of the world from general government (Table VIII).
- ENTRY : Expenditures.
DERIVATION: Consumption expenditures plus taxes plus transfers to general government and the rest of the world.
10. ENTRY : Saving.
DERIVATION: Balance entry.

Table A-VIII

DERIVATION OF GENERAL GOVERNMENT ACCOUNT

1. ENTRY : Income from property and entrepreneurship.
 DERIVATION: Statistical estimate.
 INDEX : None ($\alpha = 1$).
 ESTIMATES : $\hat{\mu} = .015$, $\hat{\sigma} = .010$, $d = 1.69$,
 $R_1 = .011$, $R_2 = .020$.
 COMMENT : This very small entry in the accounts was estimated simply as a constant. General government income from property and entrepreneurship is insignificant in the accounts of South Vietnam.

2. ENTRY : Interest on the public debt.
 DERIVATION: Statistical estimate.
 INDEX : None ($\alpha = 1$)
 ESTIMATES : A dependent variable was constructed as follows: Interest on the debt - Interest payments to the United States - $.025 \times$ Treasury bonds held by commercial banks. $.025$ is the legal rate of interest on Treasury bonds. Sources: Annual Statistical Bulletin No. 12, USAID airgrams, Monthly Bulletin of Statistics. For the years 1965-1967:
 $\hat{\mu} = .700$, $\hat{\sigma} = .118$, $d = 1.00$,
 $R_1 = .778$, $R_2 = .621$.
 COMMENT : Two significant parts of the government's interest payments on the public debt can be traced on a current basis. These parts are interest payments to the United States and interest payments on the Treasury bonds that commercial banks are required to hold. The remaining interest payments rose sharply in 1965 and appear to have remained about constant since. A statistical estimate, therefore, could only be based on the experience of the years 1965-1967.

3. ENTRY : Indirect taxes.
 DERIVATION: Statistical estimate.
 INDEX : Total actual revenues for the calendar year - actual revenues from direct taxes - actual revenues from taxes on imports (Customs and perequation taxes) - foreign aid (budgetary). Source: Monthly Bulletin of Statistics.
 ESTIMATES : A dependent variable was constructed as follows: Indirect taxes - actual revenues from taxes on imports. Source: Monthly Bulletin of Statistics.
 $\hat{\mu} = 1.143$, $\hat{\sigma} = .196$, $d = 1.36$,
 $R_1 = 1.201$, $R_2 = 1.085$.

Table A-VIII (Cont'd)

3. COMMENT (cont'd) : Almost half of the government's revenues from indirect taxes are taxes on imports. These receipts are reported on a current basis and need not be estimated. Indirect taxes on domestic production are related to total reported revenues net of reported revenues from all other major sources. The estimates suggest that this index tends to understate indirect taxes on domestic production. The discrepancy may reflect local government collections of indirect taxes or overstatement of reported revenues from direct taxes (see comment for direct taxes on corporations, below).
4. ENTRY : Direct taxes on corporations.
DERIVATION: Statistical estimate.
INDEX : Actual revenues from direct taxes. Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = .657, \hat{\sigma} = .085, d = 1.17,$
 $R_1 = .657, R_2 = .658.$
COMMENT : Both direct taxes on corporations and on households and private nonprofit institutions are estimated statistically as a constant fraction of total reported government revenues from direct taxes. The two estimated fractions sum to only .907. This appears to occur because reported revenues from direct taxes contain some transfer receipts and indirect tax revenues.
5. ENTRY : Direct taxes on households and private nonprofit institutions.
DERIVATION: Statistical estimate.
INDEX : Actual revenues from direct taxes. Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = .250, \hat{\sigma} = .034, d = 1.01$
 $R_1 = .238, R_2 = .261.$
COMMENT : See comment for direct taxes on corporations (above).
6. ENTRY : Other current transfers from households and private nonprofit institutions.
DERIVATION: Statistical estimate.
INDEX : None ($x = 1$).
ESTIMATES : $\hat{\mu} = .218, \hat{\sigma} = .161, d = 1.13$
 $R_1 = .113, R_2 = .323.$
COMMENT : This small entry has fluctuated widely with little pattern in the National Bank's figures for 1960-1967. We could find no better alternative to simply estimating these transfers at a constant level.

Table A-VIII (Cont'd)

7. ENTRY : Current transfers from the rest of the world.
DERIVATION: Statistical estimate.
INDEX : Foreign aid (budgetary). Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = .981, \hat{\sigma} = .065, d = 2.49,$
 $R_1 = 1.009, R_2 = .953.$
COMMENT : For reasons provided in Section IV, this entry should not consist only of the piaster value of foreign budgetary aid to the government. However, our statistical estimates are based on the assumption that the National Bank has consistently omitted aid in kind from its estimates of current transfers from the rest of the world. Our statistical estimates suggest that we could just as well have used the budgetary aid statistics directly.
- ENTRY : Current revenue.
DERIVATION: Income less debt interest plus direct and indirect taxes plus transfers from households, private non-profit institutions, and the rest of the world.
8. ENTRY : Consumption expenditure.
DERIVATION: Statistical estimate.
INDEX : Estimated total GVN expenditures in billions of piasters as follows: Total actual revenues for the calendar year + Changes in claims net on public sector. Source: Monthly Bulletin of Statistics.
ESTIMATES : $\hat{\mu} = .923, \hat{\sigma} = .093, d = 2.82,$
 $R_1 = .953, R_2 = .894.$
COMMENT : Consumption expenditures are estimated as a constant fraction of total expenditures of all kinds by the government. For comment on the index chosen for total expenditures see Table II, Gross domestic product in public administration and defense.
- 8A. ENTRY : Civil (expenditures).
DERIVATION: Consumption expenditure minus defense expenditures.
- 8B. ENTRY : Defense (expenditures).
DERIVATION: Budgeted expenditures for the Ministry of Defense and Veterans (Vietnamese fiscal year). Source: Vietnam Statistical Yearbook.
COMMENT : An attempt was made to statistically relate defense expenditures to current expenditure data. However, the best estimates of defense expenditures proved to be the government's own budget estimates.

Table A-VIII (Cont'd)

9. ENTRY : Subsidies.
DERIVATION: Statistical estimate.
INDEX : None ($\alpha = 1$).
ESTIMATES : $\hat{\mu} = .325$, $\hat{\sigma} = .170$, $d = 2.03$,
 $R_1 = .296$, $R_2 = .354$.
COMMENT : Government subsidies of industry have not played a large or important role in the performance of the economy of South Vietnam. The irregular fluctuations in the amount of subsidies reflect mostly several distinct changes in government policy over the last decade. We could find no good alternative to estimating subsidies as a simple random variable. Our estimates are not particularly good but the amounts involved are too small to be of serious concern.
10. ENTRY : Current transfers to households and private non-profit institutions.
DERIVATION: Statistical estimate.
INDEX : Estimated total GVN expenditures in billions of piasters.
ESTIMATES : $\hat{\mu} = .022$, $\hat{\sigma} = .014$, $d = 2.03$,
 $R_1 = .016$, $R_2 = .028$.
COMMENT : These transfers consist of donations of goods and services and such things as payments to disabled veterans, widows, etc. They have been estimated roughly as a constant fraction of total government expenditures (see Table II, gross domestic product in public administration and defense). Although the estimates are poor, the amounts involved are quite small.
11. ENTRY : Current transfers to the rest of the world.
DERIVATION: Statistical estimate.
INDEX : None ($\alpha = 1$).
ESTIMATES : $\hat{\mu} = .041$, $\hat{\sigma} = .016$, $d = 1.59$ for the years 1963-1967,
 $R_1 = .035$, $R_2 = .047$.
COMMENT : From time to time the GVN donates small amounts of goods and services to foreign citizens and the agencies of their governments. These transfers have been measured by the National Bank in a manner that omits extra budgetary transfers in kind (see Section IV). For want of a better procedure transfers to the rest of the world are estimated as constant from data for the years 1963-1967. During these years transfers were quite small but fairly stable.

Table A-VIII (cont'd)

ENTRY : Current expenditures.
DERIVATION: Consumption expenditures plus subsidies plus transfers to households, private nonprofit institutions and the rest of the world.

12. ENTRY : Saving.
DERIVATION: Balance entry.

Table A-X

DERIVATION OF EXTERNAL TRANSACTIONS ACCOUNT

1. ENTRY : Exports of goods and nonfactor services.
DERIVATION: Sum of merchandise and other exports.
- 1A. ENTRY : Merchandise goods.
DERIVATION: Receipts in US dollars for goods and nonmonetary gold. Dollars converted to piasters at 118:1 for for 1968 and 1969. Source: Vietnam Statistical Yearbook and preliminary estimates of the 1969 balance of payments supplied by the National Bank to Mr. Nguyen Uyen of the Joint USAID/Embassy Economic Office, Saigon.
- 1B. ENTRY : Other exports.
DERIVATION: All receipts for tourism, travel and education, transportation, and insurance
+ .6 x receipts from governments (not elsewhere classified)
+ .8 x receipts for miscellaneous services.
Dollars converted to piasters at 118:1 for 1968 and 1969. Note: .6 and .8 are the approximate proportions for nonfactor receipts from governments and for miscellaneous services in the 1966 and 1967 balance of payments. Source: Vietnam Statistical Yearbook and preliminary estimates of the 1969 balance of payments supplied by the National Bank to Mr. Nguyen Uyen of the Joint USAID/Embassy Economic Office, Saigon.
2. ENTRY : Factor income from the rest of the world.
DERIVATION: Receipts for capital services in US dollars
+ .4 x receipts from governments (not elsewhere classified)
+ .2 x receipts for miscellaneous services (see "note" in entry 1B). Source: Vietnam Statistical Yearbook and preliminary estimates of the 1969 balance of payments supplied by the National Bank to Mr. Nguyen Uyen of the Joint USAID/Embassy Economic Office, Saigon.
3. ENTRY : Current transfers from the rest of the world.
DERIVATION: Private and official transfer receipts in US dollars + gifts from the rest of the world. Dollars converted to piasters at 118:1 for 1968 and 1969. Source: Vietnam Statistical Yearbook and preliminary estimates supplied by the National Bank to Mr. Nguyen Uyen of the Joint USAID/Embassy Economic Office, Saigon.

Table X (Cont'd)

- ENTRY : Current receipts from the rest of the world.
DERIVATION: Exports plus factor income plus current transfers from the rest of the world.
4. ENTRY : Imports of goods and nonfactor services.
DERIVATION: Merchandise and other imports.
- 4A. ENTRY : Merchandise (Imports).
DERIVATION: Estimated PX thefts of 4 billion piasters in 1968 and 1969 + Payments in US dollars for goods and non-monetary gold. Dollars converted to piasters at 118:1 for 1968 and 1969 except for imports of fertilizer (\$7.6 million in 1968 and \$36.5 million in 1969) converted at 80:1. Note: Value of PX thefts as estimated by the National Bank for 1967 (obtained in private conversation). Source: Vietnam Statistical Yearbook and preliminary estimates of the 1969 balance of payment supplied by the National Bank to Mr. Nguyen Uyen of the Joint USAID/Embassy Economic Office, Saigon.
- 4B. ENTRY : Other (Imports).
DERIVATION: All payments for tourism, travel and education, transportation, insurance, and government payments (not elsewhere shown). = .5 x payments for miscellaneous services. Dollars converted to piasters at 118:1 for 1968 and 1969. Note: .5 is the approximate proportion of nonfactor payments for miscellaneous services in the 1966 and 1967 balance of payments. Source: Same as above.
5. ENTRY : Factor income paid to the rest of the world.
DERIVATION: Minus payments for capital services in US dollars + Payments from government (not elsewhere classified) + .5 x payments for miscellaneous services. (See "Note" in entry 4B). Dollars converted to piasters at 118:1 for 1968 and 1969. Note: See derivations of exports and imports of non-factor goods and services. Source: Vietnam Statistical Yearbook and preliminary estimates of the 1969 balance of payments supplied by the National Bank to Mr. Nguyen Uyen of the Joint USAID/Embassy Economic Office, Saigon.

Table X (Cont'd)

6. ENTRY : Current transfers to the rest of the world.
DERIVATION: Private and official transfer payments in US dollars + gifts made to the rest of the world. Dollars converted to piasters at 118:1 in 1968 and 1969. Source: Vietnam Statistical Yearbook and preliminary estimates of the 1969 balance of payments supplied by the National Bank to Mr. Nguyen Uyen of the Joint USAID/Embassy Economic Office, Saigon.
- ENTRY : Current payments to the rest of the world.
DERIVATION: Imports plus factor payments plus current transfers to the rest of the world.
7. ENTRY : Surplus of the nation on current account.
DERIVATION: Balance entry.