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Forecasting Using First-Available Versus Fully Revised Economic Time-Series Data

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Abstract. *First-reported monthly and quarterly time-series data on nine macroeconomic variables from 1960–1993 are given. Features of this so-called "unrevised" or "first-reported data" are discussed, and the data is compared with standard "fully revised" data using Granger causality tests. For the purposes of real-time forecasting, as well as comparing professional forecasts with traditional econometric forecasts, the use of unrevised (or, even better, "real-time") data has a number of advantages over the use of fully revised data.*

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1 Introduction

In the past, many econometric forecasting models were constructed using "currently available" data. For example, data are often downloaded from CITIBASE, and used without much thought to the "timing" of the data. However, it is well known that many CITIBASE series are formed by combining different "vintages" of economic data (e.g., preliminary data and data that have been revised a number of times). For this reason, it has often been pointed out that such data should be used with caution, if used in the construction of econometric forecasts. In particular, it may be optimal to formulate and estimate econometric models at time period $t-1$, say, using only data that were available prior to period t. This allows one to guard against future information creeping into econometric specifications, and thus forecasts, when data that have been subjected to two-sided moving average filters, benchmark revisions, or periodic revisions are used, for example. In this sense, the data-revision problems pointed out by Fair and Shiller (1990) are at least partially addressed, and true *ex ante* forecasts can be constructed.

More generally, different participants in the economy base their decisions on forecasts made using various different combinations of both revised and unrevised data. For instance, some agents (e.g., financial market participants) probably base their decisions on forecasts of both unrevised as well as revised data, or, at the very least, use true *ex ante* forecasts. Thus, it may be reasonable to construct econometric forecasting models using "real-time" data (see Hamilton and Perez-Quiros [1995]) in many cases.

As a further example, note that many policy setters face the task of using currently available economic indicators and data to help formulate economic policies. In particular, it is likely that policy setters use, at least in part, all currently available data to produce projections of economic activity under various different scenarios, where the scenarios differ according to which economic variables are targeted. When such policy-setting activity is combined with the fact that many economic variables are revised more or less indefinitely into the future, it is natural to ask, Which vintages of data are used by policy setters (and real-time forecasters), and are these data the same as those that are usually used in the construction of standard econometric forecasting models?

As discussed above, the answer to this question is that there are a number of different types of data, and at least in practice, the data that are used by policy setters may differ from those used in many econometric forecasting models. To see how this situation arises, consider classifying economic data into three categories.

Preliminary, first-reported, or unrevised data

This type of data consists of the first-reported datum for each variable at each point in time. Thus, a series of this type has had no revisions to any observations at any point in time. Swanson and White (1995a,b) use unrevised data to construct real-time or *ex ante* forecasts of a group of macroeconomic variables, and find that professional forecasts (which are necessarily real time) are sometimes dominated by econometric models, based on a number of model-selection criteria such as mean-squared error and so-called "confusion rates."

Partially revised or real-time data

These types of data are difficult to collect, as they are made up of a full vector of observations at each point in time for each variable. For example, if constructing a real-time data set for money, say M2, then for January 1990 a complete sequence of data, from say 1959 to January 1990, must be collected. Furthermore, the data must be collected as if one were in January 1990, so that no revisions of any kind made after January 1990 are incorporated into the data. Then, a whole new sequence of data from 1959 to February 1990 must be collected, representing precisely all of the information that was available in February of 1990. This procedure is continued for each observational period in the sample. This real-time data collection strategy ensures that "future information" due to the use of information which is temporally antecedent to the date under consideration is not (accidentally) used in the construction of revised data. Also, this type of data avoids many of the types of problems associated with seasonal revisions, benchmark revisions, and definitional changes, for example, and can be thought of as truly real time in the sense that it is the data set that is available to real-time forecasters and policy setters at any given point in time. Fair and Shiller (1990) note that the data-revision issues raised above are potentially relevant when so called "professional forecasts" are compared with forecasts from econometric models which use data that have been consistently revised (note that in addition to the above functions, the revision process also addresses measurement errors, survey collection problems, etc.) right up to the date that the data are pulled from CITIBASE or some other data tape, say.

To illustrate a potential concern, consider the following. A researcher wishes to compare economic forecasts made by a professional forecasting service with her/his own forecasts. The professional forecasts are, say, one-month-ahead forecasts of M2, made at each point in time over the last 10 years. The econometrician constructs a real-time forecasting model by re-estimating her/his specification at each point in time, t, and then constructing a one-step-ahead forecast, where all data is obtained from CITIBASE at terminal time, T. This practice may seem fairly common, but one large potential problem exists. Assume that the two competitors are both attempting to forecast the same thing, say "final" revised M2. Then, the experiment is poorly constructed, as both forecasters use data only up until t to construct each forecast, but the econometrician's data is not real time, as it has potentially been revised periodically up until time T. Thus, the comparison of the two so-called "one-step-ahead forecasts" may be invalid, as the two streams of forecasts are made using possibly very different data sets. This problem is of particular concern for variables that are frequently and/or substantially revised as new information becomes available. Diebold and Rudebusch (1991a,b) construct a real-time data set for the Composite Leading Index (CLI), and find that the Granger causal relation between final-revised IP and the CLI is not as strong when real-time CLI data are used as opposed to final-revised CLI data. In fact, it has long been realized that real-time data may have a potentially important role to fill in the study of economic relationships. Of note is that some types of time series are never revised (this class of variables is mainly financial variables, such as interest-rate series), and so may be thought of as real time, for example, regardless of when the data were collected.

A very limited number of recent articles in this area (from which many other important references can be obtained) are: Boschen and Grossman (1982), Keane and Runkle (1990), Mariano and Tanizaki (1995), Patterson (1995), and Swanson and White (1995c).

Fully revised or final data

It is quite possible that true "final" data will never be available for many economic series. This is because benchmark and definitional changes are ongoing and may continue into the indefinite future, for instance. In practice, by final data we usually mean the data available at the terminal date of our sample of interest. Thus, if I'm looking at data today, in December 1995, say, then current data from the CITIBASE tape may be considered as fully revised, at least in the sense that no data that has been revised even further is available. This is the type of data that is usually used in economic time-series studies, perhaps mostly because it is by far the easiest type of data to obtain. However, even brief consideration of this type of data should be enough to cause one to be careful when using it. For example, because the data is fully revised only up until T, then recent data may be in fact unrevised, or may have been revised only once or twice, while older data may have been revised many times.

The rest of this paper is organized as follows. Section 2 discusses the data that is reported in the paper. Section 3 examines the relationship between unrevised and final data by reporting on the Granger causal linkages between the variables of different vintages. Perhaps not surprisingly, it turns out that bivariate Granger causal relationships vary depending on which vintage of data is used. Section 4 concludes.

2 The Data

In this section, we discuss nine macroeconomic time series for which unrevised data have been collected. These data are of potential interest to real-time forecasters and/or policy setters. The data contained in Appendix I is not real time, though. Thus, truly *ex ante* forecasting comparisons cannot be undertaken using our data. However, as fully revised data may be subject to many of the problems discussed above, the unrevised data may nevertheless be used as a "first cut" for experiments that compare professional forecasts with those forecasts calculated using econometric models in conjunction with final data, for example (see Swanson and White [1995a,b]). Other unrevised and real-time data are currently the subject of some interest at the Federal Reserve Board (Monetary and Reserves Projection Section), and at the Philadelphia Federal Reserve Bank (various macroeconomic variables), and data sets are under construction, or already available at these institutions. (For other sources of real-time data, the reader is referred to the references given above.)

Our particular data-collection strategy allows us to formulate and estimate econometric models at time period $t-1$, say, using only data that were available prior to period t. This allows us to guard against future information creeping into our econometric specifications, and thus our forecasts. Thus, the data-revision problems pointed out by Fair and Shiller (1990), for example, are at least partially addressed, and crude *ex ante* forecasts can be constructed.

For the period 1960 to 1993 we have collected "preliminary" or "first-available" (which we above call "unrevised") U.S. data for unemployment, interest rates, industrial production, nominal gross national product, corporate profits, real gross national product, personal consumption expenditures, the change in business inventories, and net exports of goods and services. Table 1 expands on the series definitions.

The raw data, which are reported in Appendix I, Table I, are both monthly and quarterly, and are published monthly in the *Survey of Current Business* (SCB). To collect the data, each monthly issue of the SCB from 1960 to 1993 was examined. Each time a "new," or first-available, observation for any of the series was reported, we added one more observation to our data set.

A number of additional features of the raw data are worth noting. First, some of the variables are measured in nominal dollars, and some are measured in real dollars; some are monthly, and some are quarterly. These differences are stated in Table 1. Second, the quarterly variables all derive from the National Income and Product Accounts, while the monthly series are compiled by various other government agencies. Finally, the variables measured in real dollars (or as a real index, as is the case for industrial production) are subject to base-year changes. These changes are given as notes i–v for the quarterly variables in Table I, and as notes 1–4 for the monthly series. Whenever a "note" entry is given in a table, an extra row of data (for the real variables only) is given. This extra data corresponds to the first available observation for the previous month during the month that a base-year change was made. For example, corresponding to note i (where there was a base-year change in 1965:3) there are four entries for $GNPr$, pce, ΔBI, and $netX$. These entries are the first-available figures for the month previous to the base-year change (that is, for 1965:2) measured using the new base year. Thus, there are two figures reported for 1965:2, those using the old base year, and those using the new base year. This extra data can be used to extrapolate all of the data to a single base year, which is useful when constructing forecasts using levels data and comparing them with econometric forecasts based on fully revised data.

The following base-year changes correspond to notes i–iv and notes 1–4:

- note i real variables change from 1954 dollars to 1958 dollars,

Table 1
Variable Definitions and Mnemonics

- *un*: Civilian Unemployment Rate: SA, percentage, monthly.
- *int*: Aaa Corporate Bond Yield: Moody's, percentage, monthly.
- *ip*: Industrial Production Index: SA, index, base year varies, monthly.
- *GNPn*: Gross National Product: SA, billions, quarterly.
- *prof*: Corporate Profits after Taxes: SA, billions, quarterly.
- *GNPr*: Gross National Product: SA, base year varies, quarterly.
- *pce*: Personal Consumption Expenditures: SA, base year varies, quarterly.
- ΔBI: Change in Business Inventories: SA, base year varies, quarterly.
- *netX*: Net Exports of Goods and Services: SA, base year varies, quarterly.

- note ii real variables change from 1958 dollars to 1972 dollars,
- note iii real variables change from 1972 dollars to 1982 dollars,
- note iv real variables change from 1982 dollars to 1987 dollars,
- note 1 *ip* base-year change from 1957 = 100 to 1957–1959 = 100,
- note 2 *ip* base-year change from 1957–1959 = 100 to 1967 = 100,
- note 3 *ip* base-year change from 1967 = 100 to 1977 = 100, and
- note 4 *ip* base-year change from 1977 = 100 to 1987 = 100.

A final note concerning Table 1 is that GNP figures stopped being reported in 1992, and were replaced with GDP figures in the *Survey of Current Business*. In the table, GDP is reported from 1992:1 on. However, underneath each row of data from 1992:1, two GNP figures are also reported. These were calculated by adding to the first-available GDP figure, at time t, say, the first-available "rest of world" figure (which constitutes the main difference between GDP and GNP measures) from time t (or beyond time t if the matching first-available observation was not yet published). (Please see Swanson and White [1995a] for further details.)

The raw data in Table I can be used in a number of ways. For example, growth rates can be constructed. Another possibility is to attempt to rebase all real variables to the same base year. Table II in Appendix I does this, and also averages the monthly series, yielding nine quarterly variables with the following properties. The four real national income and product account variables are measured in 1987 dollars, *ip* has 1987 = 100, and the other variables are measured either in nominal billions of dollars, or as percentage rates. The series which are rebased to 1987 dollars were constructed using a simple extrapolation based on overlapping quarters of data in the two different base years.

3 Bivariate Granger Causality Tests

To illustrate in a very simple setting how the unrevised data may differ from finally revised data, the following experiment was run. Data corresponding to the nine macroeconomic variables given in Table II of Appendix I was collected from CITIBASE. The CITIBASE mnemonics for each of the series, in order as appears in Table 1, are: LHUR, FYAAAC, IP, GDP, GKPAT, GDPQ, GCQ, GVQ, and GNETQ. The first three series were averaged from monthly to quarterly. Then, 72 bivariate Granger causality tests using each of the two data sets were carried out to help determine potential forecasting relationships.

For all regressions, a constant and a deterministic time trend were included. (The trend term is probably not significant in the "none" income and product account variables, but should not affect the size of the standard F-tests that were used to perform the tests. However, the models may be inefficiently estimated in this case, so that the power of the tests may be driven downward.) We assumed that the pairs of variables can be adequately represented as vector autoregressions with five lags (or 1.25 years). Finally, to allow us to use levels data (even though the series were all found to be I(1) using standard Dickey-Fuller regressions), we included one extra lag in each bivariate regression, for a total of six lags of each variable, a constant, and a deterministic time trend in each regression. The extra lag ensures that standard inference can be applied to the coefficients on the first five lags of each variable.

Table 2
CITIBASE Data: Bivariate Granger Causality Tests 1982:3–1993:3

	un	*int*	*ip*	*GNPn*	*prof*	*GNPr*	*pce*	ΔBI	*netX*
un	XXX	.203	.000	—	—	.162	—	.159	—
int	.046	XXX	—	—	—	.089	—	.198	—
ip	—	—	XXX	.200	—	—	—	—	.245
GNPn	—	—	.182	XXX	—	—	—	.003	.073
prof	—	.207	—	—	XXX	—	—	.085	—
GNPr	.246	—	.005	—	—	XXX	—	.032	.101
pce	.152	—	.020	—	—	—	XXX	.250	.044
ΔBI	—	—	.182	—	—	.207	.063	XXX	—
netX	—	—	—	—	—	—	—	—	XXX

Table 3
Unrevised Data: Bivariate Granger Causality Tests Tests 1982:3—1993:3

	un	*int*	*ip*	*GNPn*	*prof*	*GNPr*	*pce*	ΔBI	*netX*
un	XXX	—	.012	.122	—	.087	—	.001	—
int	.137	XXX	—	.068	—	.002	.019	—	.165
ip	.127	—	XXX	.207	—	—	—	.018	—
GNPn	—	—	.064	XXX	—	—	—	.115	.219
prof	—	—	—	—	XXX	—	.237	—	—
GNPr	—	—	.011	—	—	XXX	.001	.043	—
pce	.027	—	.021	—	.005	—	XXX	—	—
ΔBI	.183	—	—	—	—	.047	.002	XXX	—
netX	—	.109	—	.212	—	—	—	—	XXX

Note: The tables contain standard F-test statistic p-values from bivariate causality tests, where the null hypothesis is that the "column" variable Granger causes the "row" variable. Statistic p-values above 0.25 are not reported. Variable definitions are given above.

This approach, although resulting in inefficient estimation, allows us to avoid attempting to specify cointegrating relations (in the sense of Engle and Granger [1987]). In essence, we inefficiently estimate cointegration of any rank, if there is cointegration. If there is no cointegration, the method is still valid, as long as the highest order of integratedness of the variables is less than or equal to the number of extra lags of the variables which are included as extra regressors. This is only one approach to dealing with cointegration of unknown form, and is due in large part to Toda and Yamamoto (1995) and Choi (1993). Other approaches include fully modified VAR (Phillips [1995], for example). Swanson (1995) uses a similar approach to examine the causal relationship between money and income, and finds that there is a strong causal link between the variables, in contrast to other recent findings to the contrary. Summarizing, all regressions run were of the type:

$$y_t = \alpha_0 + \sum_i \beta_i y_{t-i} + \gamma t + \sum_i \delta_i x_{t-i} + \epsilon_t \tag{1}$$

where the $t = 1, \ldots, T$, x and y are two variables from the list of nine macroeconomic variables, ϵ is a white-noise error term, the index, i, runs from 1 to 6, and the null hypothesis of the causality test is that $\delta_1 = \cdots = \delta_5 = 0$.

Standard F-test p-values for the regressions using a data sample from 1982:3–1993:3 are reported in Table 2 (CITIBASE data) and Table 3 (unrevised data). Dashes appear whenever the associated p-value was found to be greater than 0.25. All other numerical values are reported. It is immediately apparent by cursory examination of the tables that the causality test results are strongly data dependent, and that there are few obvious analogs concerning the relative forecasting ability (as measured by the causality test results) of finally revised versus unrevised variables. Of course, our results could be due to model misspecification, model-estimation inefficiencies, and data-collection problems (e.g., our choice of how to rebase the unrevised data, or our use of unrevised rather than partially revised data). However, the results can also be interpreted as an indication of the potential disparities between data of different vintages. In this sense, the results might be used as evidence that if we are attempting to construct forecasting models, and in particular, real-time forecasting models, then special care must be taken when we construct our data sets.

4 Conclusion

In this note we have provided some unrevised data on nine macroeconomic variables. Other types of data are also discussed, and it is reiterated that unrevised or partially revised data is important for real-time forecasting, policy-setting behavior, and other situations where professional forecasts are compared with econometric forecasts.

To illustrate the differences between different vintages of data, we compare unrevised data on nine macroeconomic variables with fully revised data on the same variables. Simple bivariate Granger causality tests suggest that the forecasting usefulness of different vintages of the same data series varies substantially.

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Appendix I: Data Tables

Table I
Raw Unrevised Data: Quarterly 1960–1968

	GNPn	*GNPr*	*pce*	ΔBI	*netX*	*prof*
1960:1	500.2	439.3	293.5	9.2	−0.7	25.0
2	505.0	442.2	298.3	4.8	0.7	23.4
3	503.5	438.0	296.9	0.6	2.2	21.3
4	503.5	437.0	297.6	−2.4	3.4	20.8
1961:1	499.8	432.4	294.7	−3.8	3.8	20.0
2	516.1	445.5	301.6	2.9	1.9	22.8
3	525.8	451.8	305.0	3.9	0.6	23.8
4	542.2	464.6	310.8	4.7	2.0	26.5
1962:1	548.3	468.2	312.8	6.1	1.3	25.9
2	552.0	470.8	316.9	3.7	0.7	26.1
3	555.3	471.6	319.0	0.8	−0.3	26.1
4	563.5	477.7	322.8	1.3	0.5	27.3
1963:1	571.8	482.7	325.3	3.0	0.5	27.1
2	579.6	489.4	327.0	3.8	2.8	26.8
3	588.7	495.1	330.1	4.0	2.3	27.4
4	600.1	501.7	332.8	5.0	3.3	28.7
1964:1	608.0	506.4	339.0	2.1	4.5	31.1
2	618.5	513.7	345.0	3.3	3.4	31.7
3	627.5	518.2	351.9	2.5	4.5	32.0
4	633.5	521.5	352.4	5.0	5.2	31.7
1965:1	649.0	532.9	360.6	6.0	2.7	36.5
2	658.0	536.7	390.2	6.5	6.7	44.4
note i		601.7	390.2	6.5	6.7	
3	676.9	609.1	396.7	5.8	7.3	44.8
4	694.6	621.7	402.8	6.8	6.1	45.9
1966:1	714.1	633.8	409.9	7.7	5.7	48.4
2	732.0	644.2	412.2	11.6	4.6	48.7
3	746.0	650.7	418.3	9.1	4.2	48.3
4	759.1	657.0	418.5	13.2	4.7	48.2
1967:1	764.3	657.2	422.0	5.2	5.3	45.3
2	775.3	664.6	430.6	0.4	4.1	46.6
3	790.1	671.6	431.5	3.5	4.2	47.2
4	807.6	679.4	433.2	8.4	2.9	50.3
1968:1	827.3	689.7	444.7	2.5	0.6	52.2
2	850.8	701.7	447.5	9.4	−2.2	50.3
3	870.8	712.0	455.7	6.8	0.7	51.0
4	887.8	719.1	454.8	9.1	0.7	52.9

Table I
Raw Unrevised Data: Quarterly 1969–1977

	GNPn	*GNPr*	*pce*	ΔBI	*netX*	*prof*
1969:1	903.4	723.6	460.1	6.1	−2.3	53.0
2	925.1	727.3	466.2	6.0	−0.5	51.6
3	942.3	730.4	466.5	9.3	0.4	50.0
4	953.1	730.5	468.5	6.7	0.3	49.1
1970:1	960.4	726.9	471.9	2.5	1.3	46.1
2	970.1	724.3	477.5	2.5	2.1	44.3
3	985.2	727.5	480.2	3.2	2.9	45.4
4	990.9	721.3	477.1	3.5	1.9	42.1
1971:1	1018.4	731.6	485.3	2.1	2.2	42.1
2	1040.5	736.3	491.5	4.0	−0.7	44.6
3	1059.0	743.6	496.7	1.7	−0.5	45.8
4	1073.0	751.7	499.2	1.9	−0.7	49.8
1972:1	1103.2	761.0	503.5	0.3	−3.5	52.3
2	1139.0	783.1	519.5	3.3	−2.4	52.4
3	1162.2	795.3	528.7	4.5	−0.8	53.7
4	1195.8	812.4	538.6	7.7	−0.3	57.3
1973:1	1235.5	827.1	551.0	5.7	−1.0	62.3
2	1271.0	834.6	553.8	3.9	4.9	72.6
3	1304.0	841.6	556.8	5.9	5.4	71.5
4	1334.0	844.1	554.5	10.9	9.2	72.0
1974:1	1351.8	832.0	547.5	4.9	11.7	80.2
2	1383.5	828.0	542.3	9.1	9.1	91.1
3	1411.6	821.1	546.7	3.2	6.9	94.9
4	1428.0	803.7	530.1	9.1	8.9	81.1
1975:1	1419.2	782.3	532.3	−11.0	11.0	61.8
2	1433.4	779.4	539.6	−18.8	10.9	67.4
3	1497.8	804.6	548.9	−4.8	11.2	82.2
note ii		1201.5	771.6	−0.8	23.5	
4	1573.2	1217.4	778.2	0.2	24.3	80.6
1976:1	1616.3	1238.4	793.7	9.5	17.1	84.3
2	1673.0	1259.7	808.7	9.5	15.8	81.1
3	1709.7	1272.2	816.4	9.9	16.5	84.8
4	1748.5	1281.5	826.6	4.7	15.3	86.9
1977:1	1792.5	1296.8	842.2	4.9	12.1	87.6
2	1869.0	1331.6	854.6	12.5	10.0	104.1
3	1911.3	1343.2	858.0	13.2	9.5	103.7
4	1965.1	1361.4	876.4	7 .7	10.6	104.9

Table I
Raw Unrevised Data: Quarterly 1978–1986

	GNPn	*GNPr*	*pce*	ΔBI	*netX*	*prof*
1978:1	1992.9	1358.3	879.2	11.3	4.5	102.9
2	2076.9	1378.6	886.5	13.1	7.8	117.3
3	2141.1	1394.3	893.7	10.7	12.0	122.0
4	2210.8	1412.2	910.0	7.7	11.0	130.7
1979:1	2265.6	1417.3	915.7	11.8	8.9	137.9
2	2327.2	1418.8	913.5	16.8	12.9	138.6
3	2395.4	1434.4	925.9	7.9	19.7	147.9
4	2455.8	1438.4	935.2	3.2	20.7	148.8
1980:1	2520.3	1444.2	939.0	0.0	20.8	155.5
2	2523.4	1410.8	913.6	2.3	29.3	129.3
3	2583.0	1412.1	922.4	−6.8	31.6	137.2
4	2741.4	1490.1	943.0	−0.2	52.9	125.1
1981:1	2826.8	1509.2	957.8	−5.7	51.8	131.6
2	2881.0	1509.1	955.6	9.7	46.0	150.1
3	2947.0	1508.2	965.2	10.3	39.5	130.8
4	2984.9	1495.6	958.3	8.5	36.7	121.2
1982:1	2995.1	1483.6	966.8	−17.5	37.8	115.9
2	3047.4	1476.8	956.3	−6.9	35.6	115.0
3	3091.4	1481.2	958.4	0.7	30.7	119.1
4	3101.3	1471.7	968.0	-17.7	21.1	98.5
1983:1	3176.7	1488.5	972.4	-12.4	24.0	112.5
2	3273.7	1521.4	1010.5	−4.5	10.2	124.1
3	3363.3	1554.4	1019.2	4.8	8.7	141.9
4	3432.0	1570.5	1032.2	7.5	2.5	142.9
1984:1	3541.2	1604.3	1046.8	26.6	−6.5	148.5
2	3646.4	1640.2	1061.7	21.5	−10.0	152.9
3	3701.2	1649.6	1064.6	31.2	−22.7	139.3
4	3752.5	1661.1	1076.2	14.2	−15.2	142.3
1985:1	3819.9	1668.0	1087.9	20.7	−26.1	140.0
2	3853.5	1670.7	1103.1	5.8	−33.8	136.5
3	3916.1	1684.8	1115.2	−2.1	−34.0	144.7
note iii		3584.1	2329.6	−1.8	−119.8	
4	4075.1	3605.0	2328.7	0.1	−127.6	149.5
1986:1	4116.7	3619.2	2354.8	26.0	−126.0	139.5
2	4182.3	3665.7	2407.0	19.6	−146.3	140.8
3	4234.3	3683.3	2450.4	−4.5	−164.6	144.0
4	4268.4	3702.4	2445.1	−11.5	−155.6	144.2

Table I
Raw Unrevised Data: Quarterly 1987–1993

	GNPn	*GNPr*	*pce*	ΔBI	*netX*	*prof*
1987:1	4339.2	3735.2	2443.1	31.0	−134.2	136.6
2	4448.8	3796.4	2488.7	41.2	−127.8	134.4
3	4512.0	3831.2	2517.0	18.1	−137.9	141.5
4	4598.0	3875.1	2496.6	58.3	−130.7	144.2
1988:1	4660.9	3902.6	2528.2	57.9	−132.2	146.4
2	4806.9	3986.3	2574.2	45.0	−90.1	132.6
3	4899.5	4007.3	2601.3	33.8	−94.9	163.1
4	4989.9	4029.2	2621.9	29.2	−100.7	173.9
1989:1	5116.8	4088.2	2634.8	53.8	−95.6	171.6
2	5194.9	4123.9	2648.2	22.0	−52.6	164.3
3	5273.2	4158.1	2691.2	30.2	−74.1	149.5
4	5337.0	4168.1	2689.3	32.6	−61.8	156.7
1990:1	5441.2	4195.8	2710.1	2.6	−41.2	157.0
2	5451.6	4163.2	2675.2	26.2	−46.5	166.7
3	5514.4	4173.6	2702.7	7.8	−52.5	177.2
4	5518.9	4147.6	2675.8	−16.3	−23.6	181.1
1991:1	5562.3	4123.9	2664.1	−20.7	2.2	167.6
2	5620.5	4128.4	2687.2	−21.2	−18.6	163.7
note iv			3252.4	−30.4	−12.3	
3	5670.8	4143.1	3270.6	0.4	−32.3	189.9
note v	5709.2	4862.7				
4	5736.6	4866.3	3262.2	2.7	−8.3	190.3
1992:1	5809.3	4891.9	3313.8	−26.1	−17.8	204.9
gnp	5836.5	4912.9				
2	5893.6	4890.5	3286.6	1.0	−35.9	234.6
gnp	5909.3	4900.6				
3	5967.1	4924.5	3316.1	14.7	−51.5	218.8
gnp	5993.1	4949.0				
4	6061.9	4979.8	3353.6	7.2	−54.6	242.6
gnp	6086.8	4995.9				
1993:1	6158.8	5013.1	3369.9	35.8	−54.6	253.8
gnp	6168.1	5019.6				
2	6206.9	5019.5	3398.1	8.2	−69.9	264.3
gnp	6323.3	5101.3				
3	6396.3	5138.0	3467.9	7.3	−80.1	274.4
gnp	6397.4	5140.5				

Table I
Raw Unrevised Data: Monthly 1960–1968

	*ipM*1	*ipM*2	*ipM*3	*unM*1	*unM*2	*unM*3	*intM*1	*intM*2	*intM*3
1960:1	111	110	109	5.2	4.8	5.4	4.61	4.56	4.49
2	109	110	109	5.0	4.9	5.5	4.45	4.46	4.45
3	109	109	107	5.4	5.9	5.7	4.41	4.28	4.25
4	107	105	103	6.4	6.3	6.8	4.30	4.31	4.35
1961:1	102	102	102	6.6	6.8	6.9	4.32	4.27	4.22
2	105	108	110	6.8	6.9	6.8	4.25	4.27	4.33
3	112	113	112	6.9	6.9	6.8	4.41	4.45	4.45
4	113	114	115	6.8	6.1	6.1	4.42	4.39	4.42
1962:1	114	115	116	5.8	5.6	5.5	4.42	4.42	4.39
2	117	118	118	5.5	5.4	5.5	4.33	4.28	4.28
3	119	119	119	5.3	5.8	5.8	4.34	4.35	4.32
note 1	119.3	119.6	119.8						
4	119.5	119.5	119.6	5.5	5.8	5.6	4.28	4.25	4.24
1963:1	119.0	119.1	120.4	5.8	6.1	5.6	4.21	4.19	4.19
2	122.4	123.8	125.1	5.7	5.9	5.7	4.20	4.22	4.23
3	126.5	125.6	125.7	5.6	5.5	5.6	4.26	4.29	4.31
4	126.6	126.9	127.2	5.5	5.9	5.5	4.32	4.33	4.35
1964:1	127.1	127.6	128.6	5.6	5.4	5.4	4.37	4.36	4.38
2	129.2	130.3	131.8	5.4	5.1	5.3	4.40	4.41	4.41
3	132.7	133.5	133.9	4.9	5.1	5.2	4.40	4.41	4.42
4	131.7	134.9	137.0	5.2	5.0	4.9	4.42	4.43	4.44
1965:1	137.7	138.8	140.1	4.8	5.0	4.7	4.43	4.41	4.42
2	140.8	141.3	141.9	4.9	4.6	4.7	4.43	4.44	4.46
3	143.6	144.4	142.8	4.5	4.5	4.4	4.48	4.49	4.52
4	143.6	145.5	148.3	4.3	4.2	4.1	4.56	4.60	4.68
1966:1	149.9	151.3	152.9	4.0	3.7	3.8	4.74	4.78	4.92
2	153.4	154.8	155.8	3.7	4.0	4.0	4.96	4.98	5.07
3	157.5	158.3	158.2	3.9	3.9	3.8	5.17	5.31	5.49
4	158.6	158.3	158.7	3.9	3.7	3.8	5.41	5.35	5.39
1967:1	157.9	155.9	156.4	3.7	3.7	3.6	5.20	5.03	5.13
2	155.9	155.5	155.2	3.7	3.8	4.0	5.11	5.24	5.44
3	156.3	158.0	156.3	3.9	3.8	4.1	5.58	5.62	5.65
4	156.2	159.0	161.6	4.3	3.9	3.7	5.82	6.07	6.19
1968:1	161.2	161.3	162.1	3.5	3.7	3.6	6.17	6.10	6.11
2	162.7	163.7	164.4	3.5	3.5	3.8	6.21	6.27	6.28
3	165.3	164.0	163.4	3.7	3.5	3.6	6.24	6.02	5.97
4	165.0	167.4	168.9	3.6	3.3	3.3	6.09	6.19	6.45

Table I
Raw Unrevised Data: Monthly 1969–1977

	*ipM*1	*ipM*2	*ipM*3	*unM*1	*unM*2	*unM*3	*intM*1	*intM*2	*intM*3
1969:1	169.4	169.5	170.5	3.3	3.3	3.4	6.59	6.66	6.85
2	171.5	172.8	173.9	3.5	3.5	3.4	6.89	6.78	6.98
3	175.2	174.3	173.8	3.6	3.5	4.0	7.08	6.97	7.14
4	173.3	171.1	170.9	3.9	3.4	3.4	7.33	7.35	7.72
1970:1	169.9	169.4	170.2	3.9	4.2	4.4	7.97	7.93	7.84
2	170.4	169.0	168.6	4.8	5.0	4.7	7.83	8.11	8.48
3	169.2	169.0	166.0	5.0	5.1	5.5	8.44	8.13	8.09
4	162.3	161.4	163.9	5.6	5.8	6.0	8.03	8.05	7.64
1971:1	165.1	164.8	165.2	6.0	5.8	6.0	7.36	7.08	7.21
2	166.0	167.3	167.9	6.1	6.2	5.6	7.25	7.53	7.64
note 2	106.2	107.0	107.0						
3	106.0	105.1	105.3	5.8	6.1	6.0	7.64	7.59	7.44
4	106.3	107.0	107.8	5.8	6.0	6.1	7.39	7.26	7.25
1972:1	107.9	109.0	109.6	5.9	5.7	5.9	7.19	7.27	7.24
2	110.9	111.6	112.7	5.9	5.9	5.5	7.30	7.30	7.23
3	113.6	114.6	115.2	5.5	5.6	5.5	7.21	7.17	7.22
4	116.7	118.5	119.3	5.5	5.2	5.2	7.21	7.12	7.08
1973:1	119.8	120.8	121.7	5.0	5.1	5.0	7.15	7.22	7.29
2	123.0	123.4	123.9	5.0	5.0	4.8	7.26	7.29	7.37
3	126.3	126.2	127.4	4.7	4.8	4.8	7.45	7.68	7.63
4	127.8	127.2	126.6	4.5	4.7	4.9	7.60	7.67	7.68
1974:1	125.7	124.8	123.9	5.2	5.2	5.1	7.83	7.85	8.01
2	124.7	125.4	125.5	5.0	5.2	5.2	8.25	8.37	8.47
3	125.7	125.2	125.5	5.3	5.4	5.8	8.72	9.00	9.24
4	124.9	122.0	118.3	6.0	6.5	7.1	9.27	8.89	8.89
1975:1	113.7	110.3	109.6	8.2	8.2	8.7	8.83	8.62	8.67
2	109.4	109.2	110.0	8.9	9.2	8.6	8.95	8.90	8.77
3	110.8	112.9	116.2	8.4	8.4	8.3	8.84	8.95	8.95
4	116.5	116.8	118.5	8.6	8.3	8.3	8.86	8.78	8.79
1976:1	119.3	120.2	121.7	7.8	7.6	7.5	8.60	8.55	8.52
2	126.5	129.5	130.1	7.5	7.3	7.5	8.40	8.58	8.62
3	130.7	131.3	131.0	7.8	7.9	7.8	8.56	8.45	8.38
4	130.4	131.9	132.8	7.9	8.1	7.9	8.32	8.25	7.98
1977:1	131.9	133.3	135.0	7.3	7.5	7.3	7.96	8.04	8.10
2	136.3	137.6	138.3	7.0	6.9	7.1	8.04	8.05	7.95
3	138.9	138.2	138.7	6.9	7.1	6.9	7.94	7.98	7.92
4	139.1	139.3	139.6	7.0	6.7	6.4	8.04	8.08	8.19

Table I
Raw Unrevised Data: Monthly 1978–1986

	*ipM*1	*ipM*2	*ipM*3	*unM*1	*unM*2	*unM*3	*intM*1	*intM*2	*intM*3
1978:1	138.5	139.0	141.0	6.3	6.1	6.2	8.41	8.47	8.47
2	142.9	143.8	144.6	6.0	6.1	5.7	8.56	8.69	8.76
3	145.9	146.7	147.0	6.2	5.9	6.0	8.88	8.69	8.69
4	148.5	149.5	150.5	5.8	5.8	5.9	8.89	9.03	9.16
1979:1	150.8	151.0	152.0	5.8	5.7	5.7	9.25	9.26	9.37
2	150.2	151.8	152.3	5.8	5.8	5.6	9.38	9.50	9.29
3	152.6	151.6	152.3	5.7	6.0	5.8	9.20	9.23	9.44
4	152.4	151.8	152.3	6.0	5.8	5.9	10.13	10.76	10.74
1980:1	152.7	152.4	151.3	6.2	6.0	6.2	11.09	12.38	12.96
2	148.6	144.7	141.0	7.0	7.8	7.7	12.04	10.99	10.58
3	139.8	141.0	143.7	7.8	7.6	7.5	11.07	11.64	12.02
4	146.5	149.2	150.9	7.6	7.5	7.4	12.31	12.97	13.21
1981:1	151.5	151.1	152.2	7.4	7.3	7.3	12.81	13.35	13.33
2	152.3	152.8	152.9	7.3	7.6	7.3	13.88	14.32	13.75
3	153.4	153.3	151.8	7.0	7.2	7.5	14.38	14.89	15.49
4	149.6	146.4	143.4	8.0	8.4	8.9	15.40	14.22	14.23
1982:1	139.6	142.3	141.5	8.5	8.8	9.0	15.18	15.27	14.58
2	140.7	139.4	138.2	9.4	9.5	9.5	14.46	14.26	14.81
3	138.7	138.1	137.4	9.8	9.8	10.1	14.61	13.71	12.94
4	136.2	134.8	135.0	10.4	10.8	10.8	12.12	11.68	11.83
1983:1	136.9	137.6	139.7	10.4	10.4	10.3	11.79	12.01	11.73
2	142.7	144.3	146.0	10.2	10.1	10.0	11.51	11.46	11.74
3	149.2	151.4	153.6	9.5	9.5	9.3	12.15	12.51	12.37
4	155.1	156.1	156.4	8.8	8.4	8.2	12.25	12.41	12.57
1984:1	158.0	160.0	160.9	8.0	7.8	7.8	12.20	12.08	12.57
2	162.5	162.8	164.1	7.8	7.5	7.1	12.81	13.28	13.55
3	165.8	166.1	165.2	7.5	7.5	7.4	13.44	12.87	12.66
4	164.3	165.2	165.9	7.4	7.2	7.2	12.63	12.29	12.13
1985:1	165.5	164.9	165.8	7.4	7.3	7.3	12.08	12.13	12.56
note 3	123.6	123.7	124.0						
2	124.3	124.4	124.7	7.3	7.3	7.3	12.23	11.72	10.94
3	124.4	124.8	124.9	7.3	7.0	7.1	10.97	11.05	11.07
4	124.6	125.1	126.3	7.1	7.0	6.9	11.02	10.55	10.16
1986:1	126.5	125.7	124.9	6.7	7.3	7.2	10.05	9.67	9.00
2	125.0	124.7	124.2	7.1	7.3	7.1	8.79	9.09	9.13
3	124.6	125.1	125.2	6.9	6.8	7.0	8.88	8.72	8.89
4	125.2	126.0	126.4	7.0	7.0	6.7	8.86	8.68	8.49

Table I
Raw Unrevised Data: Monthly 1987–1993

	*ipM*1	*ipM*2	*ipM*3	*unM*1	*unM*2	*unM*3	*intM*1	*intM*2	*intM*3
1987:1	126.8	127.1	126.8	6.7	6.7	6.6	8.36	8.38	8.36
2	127.2	128.0	128.8	6.3	6.3	6.1	8.85	9.33	9.32
3	130.3	131.0	130.9	6.0	6.0	5.9	9.42	9.67	10.18
4	132.0	133.1	133.6	6.0	5.9	5.8	10.52	11.01	10.11
1988:1	134.2	134.4	134.7	5.8	5.7	5.6	9.88	9.40	9.39
2	135.5	136.1	136.6	5.4	5.6	5.3	9.67	9.90	9.86
3	137.9	138.3	138.7	5.4	5.6	5.4	9.96	10.11	9.82
4	139.3	139.8	140.6	5.3	5.4	5.3	9.51	9.45	9.57
1989:1	141.1	141.0	140.5	5.4	5.1	5.0	9.62	9.64	9.80
2	141.4	141.4	141.4	5.3	5.2	5.3	9.79	9.57	9.10
3	142.0	142.4	142.4	5.2	5.2	5.3	8.93	8.96	9.01
4	141.3	142.3	142.5	5.3	5.4	5.3	8.92	8.89	8.86
note 4	107.1	108.1	108.6						
1990:1	107.2	108.1	108.8	5.3	5.3	5.2	8.99	9.22	9.37
2	108.7	109.7	109.8	5.4	5.3	5.2	9.46	9.47	9.26
3	109.9	109.8	110.7	5.5	5.6	5.7	9.24	9.41	9.56
4	109.6	107.5	107.1	5.7	5.9	6.1	9.53	9.30	9.05
1991:1	106.5	105.7	105.3	6.2	6.5	6.8	9.62	8.83	8.93
2	105.1	104.0	106.9	6.6	6.9	7.0	8.86	8.86	9.01
3	107.6	108.2	108.1	6.8	6.8	6.7	9.00	8.75	8.61
4	108.2	107.8	107.8	6.8	6.8	7.1	8.55	8.48	8.31
1992:1	106.7	107.2	107.2	7.1	7.3	7.3	8.20	8.29	8.35
2	108.2	108.8	108.2	7.2	7.5	7.8	8.33	8.28	8.22
3	108.9	111.3	108.6	7.7	7.6	7.5	8.07	7.95	7.92
4	109.6	109.7	110.5	7.4	7.2	7.3	7.99	8.10	7.98
1993:1	111.0	111.8	112.0	7.1	7.0	7.0	7.91	7.71	7.58
2	110.0	110.4	110.1	7.0	6.9	7.0	7.46	7.43	7.66
3	110.6	111.1	111.0	6.8	6.7	6.7	7.17	6.85	6.66
4	112.0	113.2	114.0	6.8	6.4	6.4	6.67	6.93	6.93

Table II
Transformed Unrevised Data 1960–1969

	un	*int*	*ip*	*GNPn*	*prof*	*GNPr*	*pce*	ΔBI	*netX*
1960:2	5.133	4.453	39.718	505.0	23.4	2000.5	1134.5	18.256	2.662
3	5.666	4.313	39.355	503.5	21.3	1981.5	1129.2	2.282	8.367
4	6.500	4.320	38.144	503.5	20.8	1977.0	1131.9	−9.128	12.931
1961:1	6.766	4.270	37.054	499.8	20.0	1956.2	1120.8	−14.453	14.453
2	6.833	4.283	39.113	516.1	22.8	2015.5	1147.1	11.030	7.226
3	6.866	4.436	40.808	525.8	23.8	2044.0	1160.0	14.833	2.282
4	6.333	4.410	41.414	542.2	26.5	2101.9	1182.1	17.876	7.606
1962:1	5.633	4.410	41.777	548.3	25.9	2118.2	1189.7	23.201	4.944
2	5.466	4.296	42.746	552.0	26.1	2129.9	1205.3	14.072	2.662
3	5.633	4.336	43.230	555.3	26.1	2133.6	1213.3	3.042	−1.141
4	5.633	4.256	43.424	563.5	27.3	2161.1	1227.7	4.944	1.901
1963:1	5.833	4.196	43.412	571.8	27.1	2183.8	1237.2	11.410	1.901
2	5.766	4.216	44.962	579.6	26.8	2214.1	1243.7	14.453	10.649
3	5.566	4.286	45.749	588.7	27.4	2239.9	1255.5	15.213	8.747
4	5.633	4.333	46.100	600.1	28.7	2269.7	1265.7	19.017	12.551
1964:1	5.466	4.370	46.415	608.0	31.1	2291.0	1289.3	7.987	17.115
2	5.266	4.406	47.384	618.5	31.7	2324.0	1312.1	12.551	12.931
3	5.066	4.410	48.449	627.5	32.0	2344.4	1338.4	9.508	17.115
4	5.033	4.430	48.873	633.5	31.7	2359.3	1340.3	19.017	19.778
1965:1	4.833	4.420	50.447	649.0	36.5	2410.9	1371.5	22.820	10.269
2	4.733	4.443	51.343	658.0	44.4	2428.1	1484.1	24.722	25.483
3	4.466	4.496	52.167	676.9	44.8	2275.3	1409.9	20.613	25.945
4	4.200	4.613	52.966	694.6	45.9	2322.4	1431.5	24.167	21.680
1966:1	3.833	4.813	54.988	714.1	48.4	2367.6	1456.8	27.366	20.258
2	3.900	5.003	56.187	732.0	48.7	2406.4	1465.0	41.227	16.348
3	3.866	5.323	57.398	746.0	48.3	2430.7	1486.6	32.342	14.927
4	3.800	5.383	57.592	759.1	48.2	2454.2	1487.3	46.914	16.704
1967:1	3.666	5.120	56.938	764.3	45.3	2455.0	1499.8	18.481	18.836
2	3.833	5.263	56.502	775.3	46.6	2482.6	1530.4	1.421	14.571
3	3.933	5.616	56.986	790.1	47.2	2508.8	1533.6	12.439	14.927
4	3.966	6.026	57.737	807.6	50.3	2537.9	1539.6	29.854	10.306
1968:1	3.600	6.126	58.682	827.3	52.2	2576.4	1580.5	8.885	2.132
2	3.600	6.253	59.432	850.8	50.3	2621.2	1590.4	33.408	−7.819
3	3.600	6.076	59.663	870.8	51.0	2659.7	1619.6	24.167	2.487
4	3.400	6.243	60.704	887.8	52.9	2686.2	1616.4	32.342	2.487
1969:1	3.333	6.700	61.685	903.4	53.0	2703.0	1635.2	21.680	−8.174
2	3.466	6.883	62.750	925.1	51.6	2716.8	1656.9	21.324	−1.777
3	3.700	7.063	63.368	942.3	50.0	2728.4	1657.9	33.053	1.421
4	3.566	7.466	62.399	953.1	49.1	2728.8	1665.1	23.812	1.066

Table II
Transformed Unrevised Data 1970–1978

	un	*int*	*ip*	*GNPn*	*prof*	*GNPr*	*pce*	ΔBI	*netX*
1970:1	4.166	7.913	61.697	960.4	46.1	2715.3	1677.1	8.885	4.620
2	4.833	8.140	61.515	970.1	44.3	2705.6	1697.0	8.885	7.463
3	5.200	8.220	61.055	985.2	45.4	2717.6	1706.6	11.373	10.306
4	5.800	7.906	59.045	990.9	42.1	2694.4	1695.6	12.439	6.752
1971:1	5.933	7.216	59.953	1018.4	42.1	2732.9	1724.8	7.463	7.819
2	5.966	7.473	60.692	1040.5	44.6	2750.5	1746.8	14.216	−2.487
3	5.966	7.556	59.972	1059.0	45.8	2777.7	1765.3	6.041	−1.777
4	5.966	7.300	60.862	1073.0	49.8	2808.0	1774.2	6.752	−2.487
1972:1	5.833	7.233	61.886	1103.2	52.3	2842.7	1789.4	1.066	−12.439
2	5.766	7.276	63.535	1139.0	52.4	2925.3	1846.3	11.728	−8.529
3	5.533	7.200	65.089	1162.2	53.7	2970.9	1879.0	15.993	−2.843
4	5.300	7.136	67.193	1195.8	57.3	3034.7	1914.2	27.366	−1.066
1973:1	5.033	7.220	68.672	1235.5	62.3	3089.6	1958.3	20.258	−3.554
2	4.933	7.306	70.188	1271.0	72.6	3117.7	1968.2	13.861	17.415
3	4.766	7.586	72.008	1304.0	71.5	3143.8	1978.9	20.969	19.192
4	4.700	7.650	72.330	1334.0	72.0	3153.1	1970.7	38.739	32.697
1974:1	5.166	7.896	70.965	1351.8	80.2	3107.9	1945.8	17.415	41.583
2	5.133	8.363	71.193	1383.5	91.1	3093.0	1927.3	32.342	32.342
3	5.500	8.986	71.344	1411.6	94.9	3067.2	1943.0	11.373	24.523
4	6.533	9.016	69.221	1428.0	81.1	3002.2	1884.0	32.342	31.631
1975:1	8.366	8.706	63.232	1419.2	61.8	2922.3	1891.8	−39.095	39.095
2	8.900	8.873	62.284	1433.4	67.4	2911.5	1917.8	−66.817	38.739
3	8.366	8.913	64.426	1497.8	82.2	3005.6	1950.8	−17.059	39.806
4	8.400	8.810	66.681	1573.2	80.6	3045.4	1967.5	0.505	61.438
1976:1	7.633	8.556	68.463	1616.3	84.3	3097.9	2006.7	24.019	43.234
2	7.433	8.533	73.183	1673.0	81.1	3151.2	2044.6	24.019	39.947
3	7.833	8.463	74.491	1709.7	84.8	3182.5	2064.1	25.030	41.717
4	7.966	8.183	74.889	1748.5	86.9	3205.7	2089.9	11.883	38.683
1977:1	7.366	8.033	75.855	1792.5	87.6	3244.0	2129.3	12.388	30.592
2	7.000	8.013	78.130	1869.0	104.1	3331.0	2160.7	31.604	25.283
3	6.966	7.946	78.812	1911.3	103.7	3360.1	2169.3	33.373	24.019
4	6.700	8.103	79.229	1965.1	104.9	3405.6	2215.8	19.468	26.800
1978:1	6.200	8.450	79.324	1992.9	102.9	3397.8	2222.9	28.570	11.377
2	5.933	8.670	81.750	2076.9	117.3	3448.6	2241.3	33.121	19.720
3	6.033	8.753	83.323	2141.1	122.0	3487.9	2259.5	27.053	30.339
4	5.833	9.026	85.010	2210.8	130.7	3532.7	2300.7	19.468	27.811

Table II
Transformed Unrevised Data 1979–1987

	un	*int*	*ip*	*GNPn*	*prof*	*GNPr*	*pce*	ΔBI	*netX*
1979:1	5.733	9.293	86.015	2265.6	137.9	3545.4	2315.1	29.834	22.502
2	5.733	9.390	86.110	2327.2	138.6	3549.2	2309.6	42.475	32.615
3	5.833	9.290	86.527	2395.4	147.9	3588.2	2340.9	19.973	49.807
4	5.900	10.543	86.527	2455.8	148.8	3598.2	2364.4	8.090	52.336
1980:1	6.133	12.143	86.508	2520.3	155.5	3612.7	2374.0	0.00	52.589
2	7.500	11.203	82.319	2523.4	129.3	3529.2	2309.8	5.815	74.079
3	7.633	11.576	80.461	2583.0	137.2	3532.4	2332.1	−17.192	79.894
4	7.500	12.830	84.650	2741.4	125.1	3727.5	2384.2	−0.505	133.748
1981:1	7.333	13.163	86.205	2826.8	131.6	3775.3	2421.6	−14.411	130.967
2	7.400	13.983	86.811	2881.0	150.1	3775.1	2416.0	24.524	116.302
3	7.233	14.920	86.906	2947.0	130.8	3772.8	2440.3	26.041	99.868
4	8.433	14.616	83.286	2984.9	121.2	3741.3	2422.8	21.490	92.789
1982:1	8.766	15.010	80.253	2995.1	115.9	3711.3	2444.3	−44.245	95.570
2	9.466	14.510	79.286	3047.4	115.0	3694.3	2417.8	−17.445	90.008
3	9.900	13.753	78.509	3091.4	119.1	3705.3	2423.1	1.769	77.619
4	10.666	11.876	76.955	3101.3	98.5	3681.5	2447.4	−44.751	53.347
1983:1	10.366	11.843	78.509	3176.7	112.5	3723.5	2458.5	−31.351	60.679
2	10.100	11.570	82.072	3273.7	124.1	3805.8	2554.8	−11.377	25.788
3	9.433	12.343	86.091	3363.3	141.9	3888.4	2576.8	12.135	21.996
4	8.466	12.410	88.631	3432.0	142.9	3928.7	2609.7	18.962	6.320
1984:1	7.866	12.283	90.773	3541.2	148.5	4013.2	2646.6	67.253	−16.434
2	7.466	13.213	92.763	3646.4	152.9	4103.0	2684.3	54.358	−25.283
3	7.466	12.990	94.222	3701.2	139.3	4126.5	2691.6	78.883	−57.392
4	7.266	12.350	93.900	3752.5	142.3	4155.3	2720.9	35.902	−38.430
1985:1	7.333	12.256	94.052	3819.9	140.0	4172.6	2750.5	52.336	−65.989
2	7.300	11.630	94.584	3853.5	136.5	4179.3	2788.9	14.664	−85.457
3	7.133	11.030	94.761	3916.1	144.7	4214.6	2819.5	−5.309	−85.962
4	7.000	10.576	95.242	4075.1	149.5	4239.2	2818.4	0.121	−154.438
1986:1	7.066	9.573	95.521	4116.7	139.5	4255.9	2850.0	31.468	−152.501
2	7.166	9.003	94.710	4182.3	140.8	4310.6	2913.2	23.722	−177.071
3	6.900	8.830	94.964	4234.3	144.0	4331.3	2965.7	−5.446	−199.220
4	6.900	8.676	95.648	4268.4	144.2	4353.7	2959.3	−13.918	−188.327
1987:1	6.666	8.366	96.433	4339.2	136.6	4392.3	2956.9	37.520	−162.426
2	6.233	9.166	97.269	4448.8	134.4	4464.3	3012.1	49.865	−154.680
3	5.966	9.756	99.346	4512.0	141.5	4505.2	3046.4	21.906	−166.904
4	5.900	10.546	100.992	4598.0	144.2	4556.8	3021.7	70.562	−158.190

Table II
Raw Unrevised Data 1988–1993

	un	*int*	*ip*	*GNPn*	*prof*	*GNPr*	*pce*	ΔBI	*netX*
1988:1	5.700	9.556	102.158	4660.9	146.4	4589.1	3059.9	70.078	−160.005
2	5.433	9.810	103.399	4806.9	132.6	4687.6	3115.6	54.464	−109.050
3	5.466	9.963	105.096	4899.5	163.1	4712.3	3148.4	40.909	−114.860
4	5.333	9.510	106.312	4989.9	173.9	4738.0	3173.3	35.341	−121.880
1989:1	5.166	9.686	107.046	5116.8	171.6	4807.4	3188.9	65.115	−115.707
2	5.266	9.486	107.452	5194.9	164.3	4849.4	3205.1	26.627	−63.663
3	5.233	8.966	108.110	5273.2	149.5	4889.6	3257.2	36.551	−89.685
4	5.333	8.890	107.933	5337.0	156.7	4901.3	3254.9	39.456	−74.798
1990:1	5.266	9.193	108.033	5441.2	157.0	4933.9	3280.1	3.146	−49.865
2	5.300	9.396	109.400	5451.6	166.7	4895.6	3237.8	31.710	−56.280
3	5.600	9.403	110.133	5514.4	177.2	4907.8	3271.1	9.440	−63.542
4	5.900	9.293	108.066	5518.9	181.1	4877.2	3238.6	−19.728	−28.563
1991:1	6.500	9.126	105.833	5562.3	167.6	4849.4	3224.4	−25.053	2.662
2	6.833	8.910	105.333	5620.5	163.7	4854.7	3252.3	−25.659	−22.512
3	6.766	8.786	107.966	5670.8	189.9	4872.0	3270.6	0.400	−32.300
4	6.900	8.446	107.933	5750.7	190.3	4877.3	3262.2	2.700	−8.300
1992:1	7.233	8.280	107.033	5836.5	204.9	4912.9	3313.8	−26.100	−17.800
2	7.500	8.276	108.400	5909.3	234.6	4900.6	3286.6	1.000	−35.900
3	7.600	7.980	109.600	5993.1	218.8	4949.0	3316.1	14.700	−51.500
4	7.300	8.023	109.933	6086.8	242.6	4995.9	3353.6	7.200	−54.600
1993:1	7.033	7.733	111.600	6168.1	253.8	5019.6	3369.9	35.800	−54.600
2	6.966	7.516	110.166	6323.3	264.3	5101.3	3398.1	8.200	−69.900
3	6.733	6.893	110.900	6397.4	274.4	5140.5	3467.9	7.300	−80.100

Editorial Policy

The *SNDE* is formed in recognition that advances in statistics and dynamical systems theory may increase our understanding of economic and financial markets. The journal will seek both theoretical and applied papers that characterize and motivate nonlinear phenomena. Researchers will be encouraged to assist replication of empirical results by providing copies of data and programs online. Algorithms and rapid communications will also be published.

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