PROPERTIES OF THE TWO ERRORS IN THE FINNISH BALANCE

OF PAYMENTS STATISTICS

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STATISTICS.

1. Introduction

This paper analyses some statistical properties,
that is, distribution and serial correlation of
two main errors in the Balance of Payments. These
errors are the quarterly published errors and
omissions term and the difference between the
first and the final current account estimate for a
certain month.

A. Errors and omissions

In many countries the error term in the Balance of
Payments Statistics has grown and become systema-
tic in recent years. This has followed the securi-
tazion and both domestic and international libera-
lization of financial markets. Among countries
with traditions of high quality statistics the
large error term in the UK is widely known and
neither do the Nordic countries escape the criti-
cism of the deteriorating quality of statistics.
In Finland the variance of the error term has also
increased. The growth of the variance of errors
means in theory that estimates of various balance
of payment items all are less reliable.

The rise in errors has also been noticed interna-
tionally, and the IMF has a project for global
improvement of Balance of Payments Statistics.
Partly the international action but mainly the
rapidly changed institutional settings have made
the Balance of Payment statisticians change and
improve data collection and compilation methods.
In all Nordic countries, systems have been rebuilt
during recent years.

B. Preliminary and final estimates of the current
account.

The monthly preliminary information about the
current account is one of the key indicators of
the economy's macro performance. Money and foreign
exchange markets react to this information and
consequently changes in interest rates and specu-
lative capital movements may occur, especially if
the credibility of the fixed exchange rate policy
of a small open economy like Finland is ques-
tioned.

In Finland, the publication of the monthly current
account information was initiated in 1987. The
figures are available on the Reuter's screen about
four weeks after the end of the respective month.
The main source of information is the Foreign Tra-
de Statistics published by the Board of Customs.

The Bank of Finland is responsible for the estima-
tes of the service, the investment income and the
transfers account. The preliminary data about
these items are obtained from foreign payments
reported by domestic banks and corporations. More
information from number of sources comes in later;
such as foreign transport account calculated in
detail by the Central Statistical Office. The
investment income and expenditure can also be
checked against the stocks of foreign assets and
liabilities.

2. The mean and variance of errors and omissions in the
   Balance of Payments Statistics

Quarterly errors are almost three times the annual
equivivalents (see chart 1 & 2). In quarterly sta-
tistics the timing and registration differences
are considerable between commodity and capital
flows, and less effort is made to even them out.

In order to evaluate the developments in the error
term in Finland, it is useful to divide the total
observation period (1970-1990) into subperiods,
namely into a) the seventies ('simple' capital
movements and exchange controls), b) the early
eighties (more complex capital movements with
exchange controls) and c) the latter part of the
eighties (new financial instruments and laborali-
zation of capital movements).

Table: The mean and the variance of the error term

	n of obs.	mean	variance
1970-90	44	0.48	26.4
1981-85	20	-0.36	26.6
1986-89	16	0.83	95.8 *

The means do not according to statistical tests
deviate from nil in any period, but the obvious
growth of variance from the early eighties to the
latter period is also statistically highly signi-
ficant.

The autocorrelation functions of the quarterly errors were also estimated and tested. Below are the first order (quarter to quarter) correlations estimated from various subperiods:

1970-80	-0.30 *	significant at 5 per cent level
1981-85	0.19	
1986-89	-0.25	

The effect of timing problems is shown in the first and second period.

The background of realized errors is discussed in detail in Pirkko Miikkulainen's paper, SP/TO working paper no.9, Helsinki 1991 (also in Swedish). In summary, it is not very probable that errors are in the current account. Finnish Foreign Trade Statistics is of high quality, and the other current account items have been compiled in the Bank of Finland with special care. Similarly, in the capital account direct investment flows go through painstaking checks. In financial capital items, the exchange controls were largely complete until 1985.

Thus, in the 70's and early eighties the larger errors coincide with periods of rapid changes in foreign trade values and patterns and are mostly caused by recording differences and but partly also by deficiently recorded changes in trade credits.

During the latter part of the eighties there have been items of capital account with known greater unreliability than in others. These are portfolio investments, both in Finland and abroad including secondary market trade of Finnish bonds. Also problems occurred in the recording of the lending of banks abroad after liberalization. If the stock data of the foreign debt become suspect, the data of net interest expenditures may fall under suspection as well. Moreover there have been a few occasions in recent years when purely technical computer problems have caused concern and increased the realized error term in the balance of payment statistics.

3. Errors in preliminary current account estimates

The first estimates are published on a very short notice. Then especially the service account data and the interest income data are still partly lacking. The urgent demand for preliminary current account data justifies the early publication.

The record of this 'early warning' indication is depicted in graphs 3 and 4. It can be concluded that in 1987 and 1988 with only moderate current account deficits the statisticians succeeded fairly well in estimations. In 1989 and 1990, when the Finnish current account deficit steeply deteriorated, the record is not so convincing. The first estimates have undervalued the final outcome but about a third of this underestimation is due to the late accrual of information on reinvested earnings of direct investments. The first information concerning these is available in the following year, in july. The reinvested earnings have in recent years increased the current account deficit by 100 million FIM. a month.

Taking this into account, the problem in early estimates is still similar to the known property of conservative forecasts, as the forecasting bodies tend to underestimate the forthcoming changes in the economy. The rapidity of the deterioration of the foreign stability of Finland has indeed astonished all forecasters.

An the bank, the production of balance of payment statistics works hand in hand with the forecasting unit. The benefits of this collaboration no doubt override the problems discussed above.

The statistical record of the errors in production of early estimates of current account is shown below.

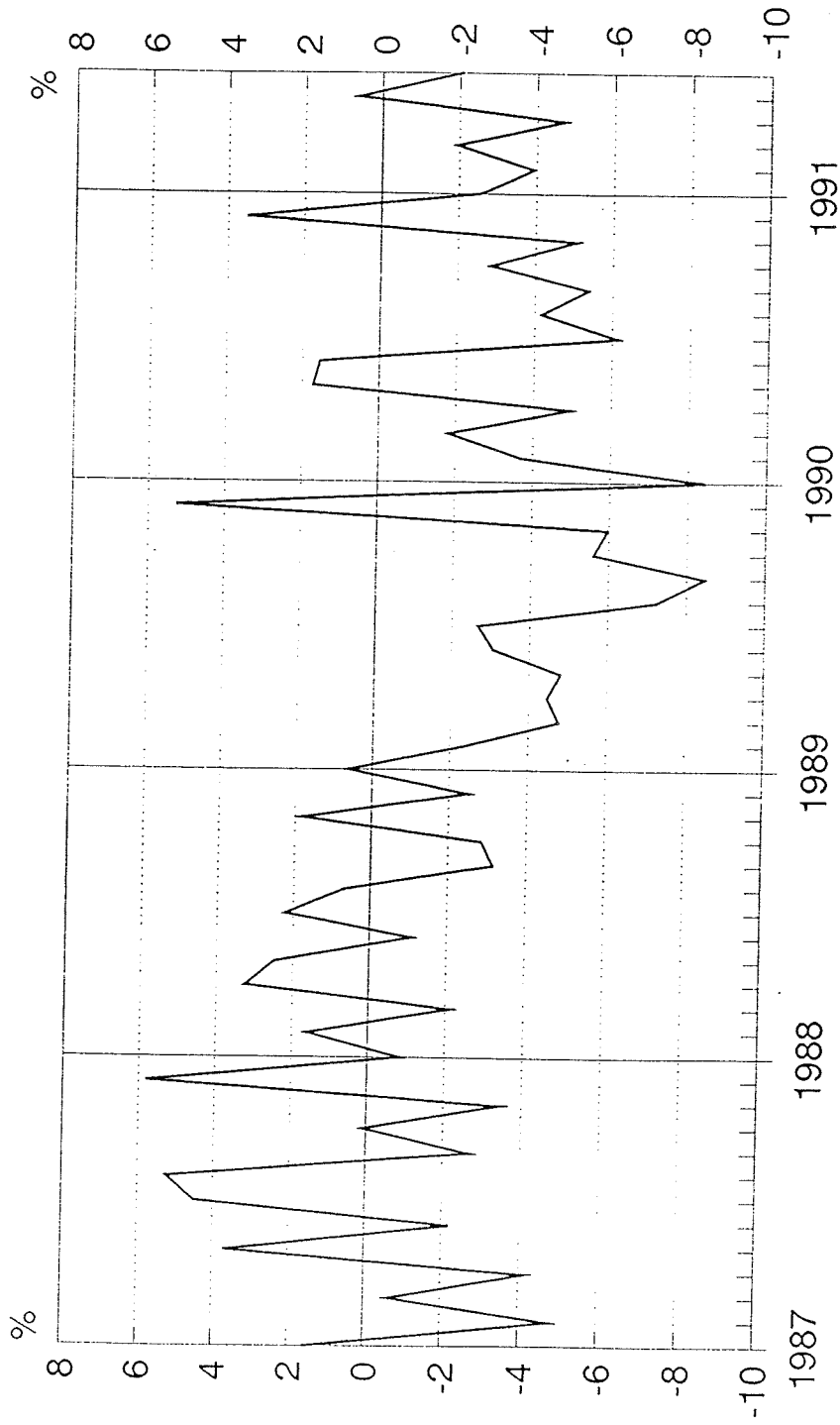|	no of observ.	mean	variance
1987-88	24	0.12	9.58
1989-90	24	-3.30 *	12.76

The mean of the latter period deviates significantly from that(=0) of the first period. The variances are statistically the same. If the mean in 1989-90 is adjusted for the reinvested earnings, the deviation from nil remains significant.

In practice, the statistics above indicate that in recent years the first monthly current account estimates have on average underestimated the final results by 300 mill. FIM of which 100 mill. is accounted for reinvested earnings, and with a risk of 5 per cent, the estimates fell within the confidence interval of 600 mill. FIM. When using early estimates qualitative information like above must be kept in mind.

ERRORS AND OMISSIONS OF BALANCE OF PAYMENTS
% OF CURRENT ACCOUNT REVENUE

Annually

Quarterly
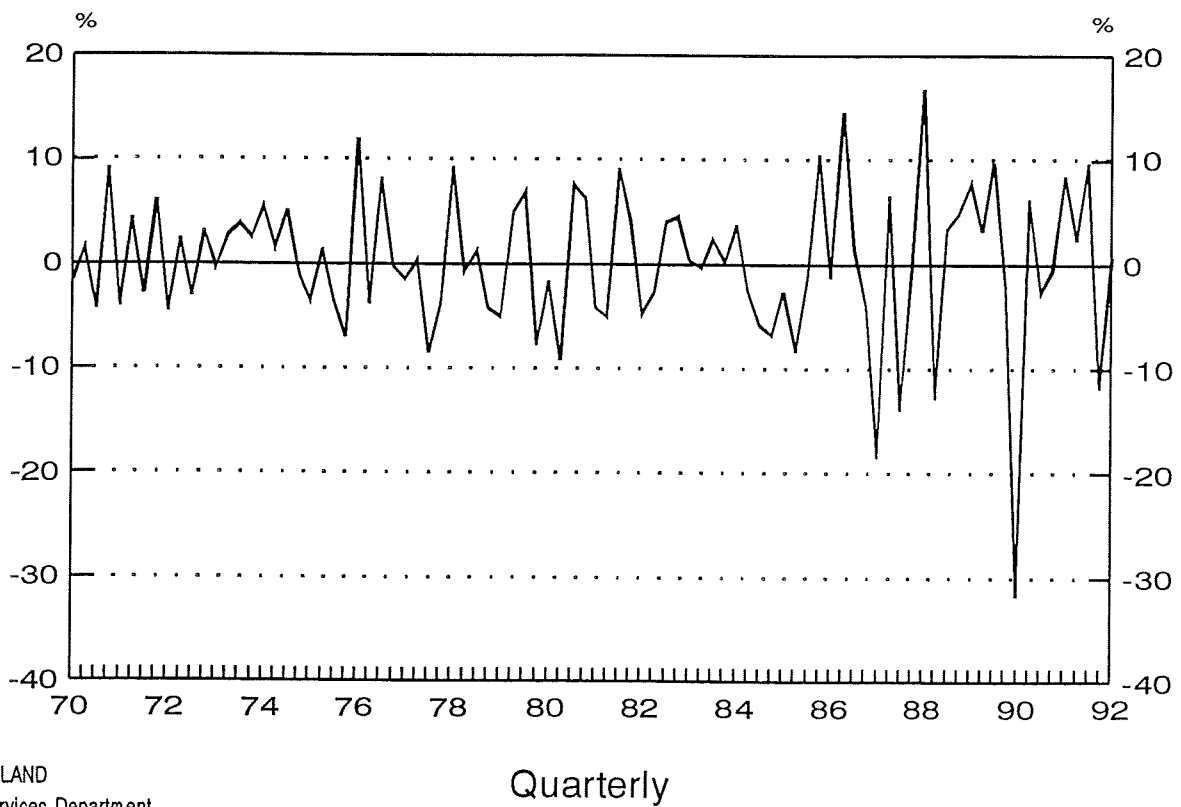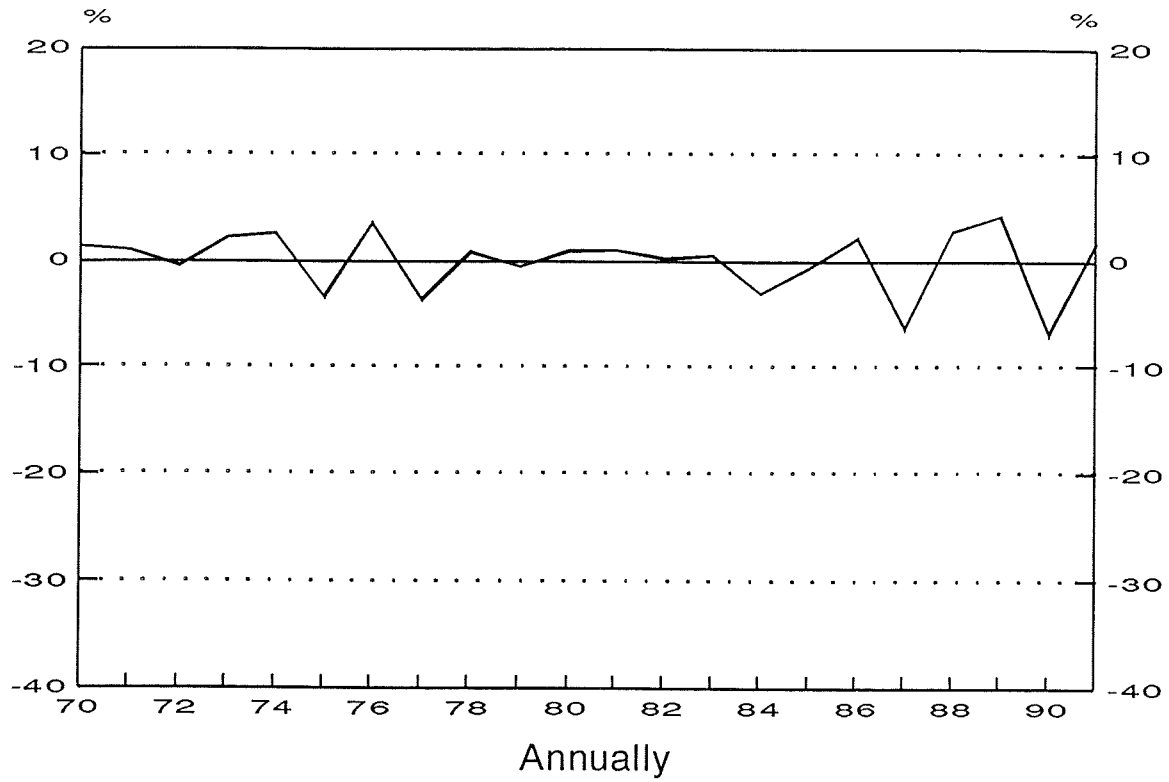
CURRENT ACCOUNT, PERCENTAGE OF CURRENT
RECEIPTS. THE DIFFERENCE BETWEEN THE
FIRST PRELIMINARY AND THE FINAL ESTIMATE

%

%

8
6
4
2
0
-2
-4
-6
-8
-10

8
6
4
2
0
-2
-4
-6
-8
-10

1987   1988   1989   1990   1991

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