TESTING MARSHALL-LERNER CONDITION: A NON-PARAMETRIC APPROACH

A Master's Thesis

by

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Ankara

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ilk öğretmenim anneme...

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The Institute of Economics and Social Sciences
of
Bilkent University

by

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In Partial Fulfillment of the Requirements for the Degree of
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August 2000

I certify that I have read this thesis and have found that it is fully adequate, in scope and in quality, as a thesis for the degree of Master of Economics.

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ABSTRACT

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August 2000

This study examines the determinants of trade flows for six developed countries. Volume of imports (exports) is regressed on relative import (export) price and domestic (world) real income using non-parametric kernel estimation techniques. On quarterly data, Local Constant Least Squares (LCLS) and Local Linear Least Squares (LLLS) estimates of trade elasticities are obtained. Using pointwise and point estimates of these elasticities, the Marshall-Lerner Condition is checked for our sample countries. The condition is satisfied for two of our six sample countries. Although the existing controversy on the subject has not been solved using non-parametric regression techniques, a new room is opened for further investigation by presenting the time-behaviour of trade elasticities.

Keywords: Marshall-Lerner Condition, Non-Parametric Kernel Estimation, Non-Parametric Regression, Local Constant Least Squares, Local Linear Least Squares.

ÖZET

MARSHALL-LERNER KOŞULU'NUN SINANMASINDA PARAMETRİK OLMAYAN BİR YAKLAŞIM

Yücel, Mustafa Eray
Yüksek Lisans, İktisat Bölümü
Tez Yöneticisi: Doç. Dr. Syed F. Mahmud

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Bu çalışmada altı gelişmiş ülke için ticaret akışları incelenmiştir. İthalat (ihracat) hacmi, göreli ithalat (ihracat) fiyatı ve yurtiçi (dünya) reel gelirinin bir fonksiyonu olarak modellenmiş ve parametrik olmayan tahmin metodları kullanılarak tahmin edilmiştir. Üçer aylık veriler kullanılarak, Yerel Sabit En Küçük Kareler (LCLS) ve Yerel Doğrusal En Küçük Kareler (LLLS) teknikleri uygulanmış ve dış ticaret esneklikleri elde edilmiştir.Bu esnekliklerin noktasal ve nokta tahminleri kullanılarak Marshall-Lerner Koşulu'nun sağlanıp sağlanmadığı sınanmış ve örneklemimizdeki altı ülkeden ikisi için koşulun sağlandığı görülmüştür. Konu üzerinde henüz söz konusu olan çelişki ortadan kalkmamakla birlikte, dış ticaret esnekliklerinin zaman içindeki davranışının incelenmesi yeni araştırmalara konu olacaktır.

Anahtar Sözcükler: Marshall-Lerner Koşulu, Parametrik Olmayan Tahmin, Yerel Sabit En Küçük Kareler, Yerel Doğrusal En Küçük Kareler.

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CHAPTER 1

INTRODUCTION

The relationship between the trade balance and exchange rates has always been of considerable interest, especially from the side of the economic policymakers. While formulating a commercial policy or an exchange rate policy, responsiveness of trade flows to relative price changes is an important consideration. The analysis of the relationship between trade flows, exchange rates and relative prices, hence, is a challenging work for empirical economics and an important issue in trade literature. According to Goldstein and Khan (1985), 'few areas in all of economics have been subject to as much empirical investigation as the behaviour of foreign trade flows' (Goldstein and Khan, 1985, p.1042).

The central question posed in almost all studies regarding the trade balance-exchange rates relationship is whether a devaluation improves the trade balance of a country. There are two basic approaches to deal with this question: The first approach which is called the 'elasticities approach' focuses on the price elasticities of import and export demand functions and uses the statement that 'initially assuming trade balance, if the sum of the absolute values import and export price elasticities exceeds unity, then a real devaluation improves the trade balance of an economy' while making its conclusions. This statement is called the Marshall-Lerner Condition, and is a very popular statement in the international trade literature.[1]

The studies using the 'elasticities approach' construct and estimate 'trade equations' defining the time-series behaviour of the quantities and prices of merchandise imports and exports. Since the relationship between the trade balance and exchange rate changes is handled through other variables, the elasticities approach has an indirect characteristic.

The second approach, which we call 'trade balance approach' investigates the trade balance-exchange rates relationship through direct channels and constructs models in which the trade balance is defined as a function of exchange rates and other relevant variables. In Chapter 2, we provide a survey of studies using either of these approaches.

As will be demonstrated in Chapter 2, almost all studies assessing the trade balance problem empirically, employ parametric estimation techniques. The debate on issue has not been settled. For example, the basic conclusion may differ or significant discrepancy between their estimates are observed. In this thesis we re-examine the issue, using non-parametric estimation technique.

We employ non-parametric kernel estimation techniques to estimate the trade equations. Using Local Constant Least Squares (LCLS) and Local Linear Least Squares (LLLS) estimators, we obtain the regression surfaces and trade elasticities,

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[1] Appendix A provides a derivation of the condition.

namely the elasticities of import (export) demand function with respect to relative import (export) price and domestic (world) real income. Through non-parametric kernel estimation we obtain two types of estimates: First of these are the 'pointwise' estimates of the regression surface and partial derivatives of the regressand with respect to each regressor. Second, we compute our 'point' estimates, proxy for a measurement of central tendency, using these pointwise estimates. The methodology is discussed in detail in Chapter 3 and Chapter 4.

We have employed quarterly data for six developed countries, Australia, Germany, Japan, Norway, the United Kingdom, and the United States. In our analysis, we have compiled data from the same sources as the preceding literature utilized and used the same or similar variable definitions. The major difference of this study, hence, is the use of the nonparametric kernel estimation methods.

As mentioned above, we have two types of elasticity estimates, so for each country we are able to check for the satisfaction of the condition for each time point as well as for whole sample period. The ability to check for the condition at each sample point distinguishes this study from the preceding literature.

The plan of this thesis develops as follows: In Chapter 2 we provide a survey of the related literature and revisit the motivation of our study. Chapter 3 presents the basics of non-parametric kernel estimation. In Chapter 4, our data and model specification is given, and finally in Chapter 5, we present our estimates and discuss our findings.

CHAPTER 2

LITERATURE

There are two major approaches to investigate the effects of a real devaluation on the trade balance of a country, namely the 'elasticities' and the 'trade balance' approaches. In this chapter, we will explore some recent studies where these approaches have been used and a brief survey of the leading studies in the literature is also provided.

2.1. Studies Employing the Elasticities Approach

The elasticities approach , is based on estimating the import and export demand functions. In most studies, export (import) volumes are regressed on effective exchange rates, relative export (import) price, and world (domestic) real income. After estimating the export and import demand functions, economic inferences are being made. For instance, a well-known statement in the trade literature, called Marshall-Lerner-(Robinson) Condition[1] says that 'a depreciation or devaluation of a country's currency will improve its current-account balance if the sum of the absolute values of the price elasticities of domestic and foreign demand

[1] See Appendix A for a derivation of the condition.

for imports is greater than unity, provided that trade balance -which is assumed to be equal the current account balance- is zero initially. So, in order to see whether devaluation will help improving the trade balance, it is sufficient to estimate the import and export demand functions and to check whether the sum of the absolute price elasticities exceeds one. This is a fairly static treatment of the behaviour of trade flows and one can estimate more dynamic models to make J-curve type of arguments.[2]

Goldstein and Khan (1985) provides a survey of studies on income and price effects in foreign trade, with an excellent discussion of the specification and econometric issues in trade modelling, as well as a summary of various estimates of price and income elasticities and related policy issues. Here, we will first discuss a small set of recent studies.

Khan (1974), has investigated for the period 1951-1969 employing annual data for individual countries[3] using the following model specification:

$$\log M^d_{it} = a_0 + a_1 \log (PM_i/PD_i)_t + a_2 \log Y_{it} + U_t,$$

is the import demand function, where:

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[2] As stated by Goldstein and Khan (1985) and Junz and Rhomberg (1973), the response of imports and exports to changes in other variables is not instantaneous due to recognition, decision, delivery, replacement, and production lags. So a dynamic treatment is required. However, the formulation of Marshall-Lerner Condition does not involve any dynamics.

[3] Included countries are Argentina, Brazil, Chile, Colombia, Costa Rica, Ecuador, Ghana, India, Morocco, Pakistan, Peru, the Philippines, Sri Lanka, Turkey, and Uruguay.

M_i = quantity of imports of country i,

PM_i = unit value of imports in country i,

PD_i = domestic price level of country i,

Y_i = real GNP of country i,

U_t is an error term, and the superscript d refers to demand

$$\log X^d_{it} = b_o + b_l \log (PX_i / PW)_t + b_2 \log W_t + V_t$$

is the export demand function where:

X_i = quantity of exports of country i,

PX_i = unit value of exports of country i,

PW= world price level (prices reported by the OECD)

W= real world income (OECD real GNP)

Since, all variables are defined in logarithms here, the estimated coefficients are the elasticities of imports and exports with respect to the corresponding variables. Having estimated these functions using OLS, Khan reported that the prices did play an important role in the determination of imports and exports of developing countries and Marshall-Lerner Condition is satisfied.[4]

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[4] In Khan (1974), all import and export quantity and unit value data were obtained from the IMF/IFS various issues, except for two countries: For Argentina, data from Central Bank of Argentina, Comercio Exterior, and for Pakistan, data from the Institute of Development Economics were used. Nominal GNP data were taken from IMF/IFS and real GNP data were taken from the UN, Statistical Yearbook, implicit deflator being generated. World income and prices were defined as real GNP reported by the OECD and the OECD GNP deflator respectively. All data are USD denominated.

Warner and Kreinin (1983) have also employed similar model, but their approach is different from Khan (1974) in two respects: First, there are two distinct investigation periods, the periods of fixed and flexible exchange rate regimes, to analyze the behaviour of model in the two periods. Second, Warner and Kreinin estimated the import demand functions as Khan (1974) did, but they also estimated the import demand excluding the petroleum products. Quarterly data for the periods 1957:1-1970:4 (fixed exchange rate period) and 1972:1-1980:4 (floating exchange rate period) separately [5] have been employed to estimate the model. Warner and Kreinin model of import and export demand functions is as follows:

Import demand function for the 1957:1-1970:4 period:

$\ln M = c + a_1 \ln Y + a_2 \ln (PM/PD)$

$\ln M = c + b_1 \ln Y + b_2 \ln PD + b_3 \ln PM$

Import demand function for the 1972:1-1980:4 period:

$\ln M = c + a_1 \ln Y + a_2 \ln PM/PD$

$\ln M = c + b_1 \ln Y + b_2 \ln PD + b_3 \ln PM$

$\ln M = c + c_1 \ln Y + c_2 \ln PD + c_3 \ln PM^{FC} + c_4 \ln E$

where

PM^{FC} : import price in foreign currencies.

M: volume of imports (on per capita basis),

Y: real GNP (on per capita basis),

PM/ PD: relative prices,

[5] Included countries are the United States, Germany, France, Japan, the United Kingdom, Canada, Italy, Netherlands, Belgium, Sweden, Denmark, Switzerland, Norway, Finland, Austria, Spain, Ireland, Austria, and the New Zealand.

E :exchange rate,

All variables are expressed in logarithms, so that parameters of this model again are the elasticities. Exchange rate was included in the model only for the floating exchange rates period and it was calculated as an import-weighted effective exchange rate.

The export demand equation of Warner and Kreinin was:

$\ln X_i = c + a_1 \ln YW_i + a_2 \ln Px^{LC}_i + a_3 \ln E_i + a_4 \ln E^P_i + a_5 \ln P^{FC}_{comp}$

where:

X_i: the volume of the country's exports,

YW_i: weighted average GDP of 23 major importing countries facing i,

Px^{LC}_i: the export unit value index of the country i, 1974=100,

E_i: the effective exchange rate index of country i's currency (1975=1)

E^P_i: expected rate of change in the exchange rate, which is proxied by $E^P=[0.7(\log E_t - \log E_{t-1}) + 0.3(\log E_{t-1} - \log E_{t-2})]$, following Wilson and Takacs (1980).

P^{FC}_{comp}: the avg export price of 64 competing countries expressed in foreign currencies, weighted by each competing country's exports into each of the markets.

After estimating the demand for imports and exports[6] using OLS technique, Warner and Kreinin reported that the introduction of floating exchange rates

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[6] Warner and Kreinin used mainly the data from IMF/IFS. Data from Direction of International Trade was also used to obtain the weights for the effective exchange rates. The value and unit value indexes were obtained from OECD Trade Series A and B and domestic oil production data were taken from OECD National Income Accounts.

appeared to have affected the volume of imports in several major countries, but the direction of change varied between them. The exchange rate and the export price of competing countries are powerful determinants of a country's exports.

Bahmani-Oskooee (1986) is a more recent study as compared to the first two, which was not mentioned in the Goldstein and Khan (1985) survey. It uses quarterly data for 1973-1980 period.[7] It provides the estimates of aggregate import and export demand functions for seven developing countries. They also provide estimates of price and exchange rate response patterns by introducing a distributed lag structure on the relative prices and on effective exchange rate, applying the Almon procedure. Since the dynamics of the determination of the trade flows are involved, Bahmani-Oskooee (1986) provides us with a more realistic setup. The equations used in this study are:

$$\ln M_t^d = a + b \ln Y_t + c \ln (PM/PD)_t + h \ln E_t + u_t \quad \text{(Import Demand)}$$

where:

M: quantity of imports

PM: import price

PD: domestic price level

Y: real GNP

E: export weighted effective exchange rate

after introducing lags the equation becomes:

[7] Included countries are Brazil, Greece, India, Israel, Korea, South Africa, and Thailand.

$$\ln M_t^d = a + b\ln Y_t + \sum_{i=0}^{n1} c_i (PM/PD)_{t-i} + \sum_{i=0}^{n2} h_i \ln E_{t-i} + u_t$$

$$\ln X_t^d = a + b\ln YW_t + c\ln(PX/PXW)_t + d\ln E_t + v_t \text{ (Export Demand)}$$

where:

X: quantity of exports,

YW: weighted average of real GNP of a country's trading partners,

PX: export price,

PXW: weighted average of the export prices of a country's trading partners,

E: export-weighted effective exchange rate, and having introduced the lags, it becomes:

$$\ln X_t^d = a + b\ln YW_t + \sum_{i=0}^{n1} c_i (PX/PXW)_{t-i} + \sum_{i=0}^{n2} d_i \ln E_{t-i} + v_t$$

Having estimated[8] the model, Orcutt's early conjecture that trade flows adjust differently to different price stimuli, was supported. According to Bahmani-Oskooee (1986)'s findings, trade flows are more responsive to changes in the relative prices than to changes in the exchange rates in the long-run. Marshall-Lerner Condition was not explicitly mentioned in this study.

The two of the most recent studies in this area are Bahmani-Oskooee and Niroomand (1998) and Bahmani-Oskooee (1998)[9]. As far as the data and variable definitions are considered, these two follow the previous literature without any

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[8] Data were taken from IMF Direction of Trade Statistics, IMF/IFS, and OECD Statistics of Foreign Trade, Series A.

[9] In this thesis, we employ the data definitions of these basically.

modifications, while both studies employ the Johansen (1988) and Johansen-Juselius (1990) cointegration analysis. The main idea behind the cointegration analysis is that if a linear combination of a set of nonstationary variables is stationary, those variables are said to be cointegrated. The Johansen-Juselius technique is based on the maximum-likelihood estimation procedure and allows for feedback effects among a set of variables. It basically provides two test statistics for determining the number of cointegrating vectors in addition to their estimates. An important feature we observe in Bahmani-Oskooee and Niroomand (1998) and Bahmani-Oskooee (1998) is the emphasis put on the match between the long-run characteristics of the Marshall-Lerner Condition and the cointegration analysis. It should also be added that, this study is the first to apply Johansen-Juselius technique to estimate the trade elasticities.

Bahmani-Oskooee and Niroomand (1998)[10] has the following model specification, for a study period of 1960-1992 annually[11]:

$$\log M_t = a + b \log (PM/PD)_t + c \log Y_t + e_t$$

is the import demand function where:

M= volume of imports, nominal imports are deflated by import price index,

PM= import prices, index of unit value of imports,

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[10] Included countries are Australia, Austria, Belgium, Canada, Colombia, Cyprus, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Korea, Mauritius, Morocco, Netherlands, Norway, New Zealand, the Philippines, South Africa, Spain, Sweden, Syria, Tunisia, the UK, the USA, and Venezuela.

[11] All data were taken from IMF/IFS.

PD= domestic price level, index of domestic price level measured by CPI,

Y= domestic income, real GDP or GNP.

$$\log X_t = a' + b' \log (PX/PXW)_t + c' \log YW_t + e'_t$$

is the export demand function where:

X= volume of exports, nominal exports are deflated by export price index,

PX= export prices, index of unit value of exports,

PXW: world export price level, dollar denominated export unit value index of the IMF's industrial country aggregate,

YW= world income, world income proxied by the index of industrial production in industrial countries, all variables are indexed and have the same base year (1985).

The estimation technique have been applied for 30 countries and the authors concluded that the Marshall-Lerner Condition is satisfied for almost all cases indicating that devaluations could improve the trade balance for these countries.

Bahmani-Oskooee (1998)[12] uses quarterly data[13] for the period 1973-1990 with a slight modification of the import and export demand equations in Bahmani-Oskooee and Niroomand (1998) through the addition of nominal effective exchange

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[12] Included countries are Greece, Korea, Pakistan, the Philippines, Singapore, and South Africa.

[13] All data were taken from IMF/IFS.

rate variable as a regressor. It is revealed that the Marshall-Lerner Condition is satisfied, for most of the LDCs covered in this study.

Having provided the basic survey of studies using the elasticities approach, we now outline a short summary of these models:

- First, all studies regress import volumes on relative import prices and real domestic income; and export volumes on relative export prices and real world income. While doing this, the underlying framework is the imperfect substitutes model of the trade literature. As it was discussed in Goldstein and Khan (1985) in detail, if domestic and foreign goods were perfect substitutes, then we should observe either of the goods having market share of unity, and each country acts as an importer or exporter of a traded good but not both. Theoretically, price and income elasticities are expected to have negative and positive signs respectively. We expect the import volume to shrink as the relative import price increases and expand as domestic real GDP increases, similar argument being valid for exports when we replace the names of the variables with their counterparts in the general export model specification. An important assumption is the perfect elasticity of import and export supplies, allowing us to restrict our attention to only demand side. It should be obvious that the picture gets complicated when we drop this assumption.
- Second, all elasticities approach models given above, focus on aggregate data for volume variables, such as import/export volumes and real incomes. Here two related questions can be posed as in Goldstein and Khan (1985) and Theil (1954). First, is it really necessary to estimate the disaggregated relationships and then to collect them together to get an aggregate estimate? Second, if our

answer to the first question is positive, how this task should be carried out? The answer to the former was formulated in the Goldstein and Khan (1985) survey. They argued that when the effect of the determining variables is exactly the same in aggregate and disaggregated models, or if there is a stable relationship between the components and aggregate explanatory variables, then we can be indifferent between aggregate and disaggregated equations. For more detail, one may refer to Grunfeld and Griliches (1960) and Aigner and Goldfeld (1974). In all the studies surveyed above, these two assumptions have been implicitly made. In this thesis we have also carried out the same assumptions.

- Third, all studies discussed earlier, except Bahmani-Oskooee (1986), use a static framework. Use of static models is theoretically consistent with the formulation of Marshall-Lerner Condition which did not involve any dynamics.
- The fourth point is, which is important in the present context, that all these studies employ parametric specifications of import and export demand functions. So by specifying functional forms, they all assume some a priori behaviour for the trade flows. We propose to estimate the trade elasticities in a non-parametric setup and make our inferences without any such prior restriction. In this way, we are able to figure out the statistical relationship between our variables without influencing it.
- Finally, we may safely conclude from this survey that one may find agreement on whether Marshall-Lerner Condition is satisfied. The satisfaction of the condition is dependent on the type of formulation employed, variables involved, and sample period. This inconclusive nature of empirical work has provided further motivation to this thesis.

2.2. Studies Employing the Trade Balance Approach

Although we have surveyed the recent studies which helped us to form our motivation for this thesis in the previous section, a brief discussion of the studies using the trade balance approach will also be provided for completeness and good understanding of the estimation problem.[14]

The standard formulation in these studies is such that, the trade balance variable (magnitude being either a monetary value or an index value) is regressed on exchange rate, real income, and other related macroeconomic variables. This formulation facilitate a more direct estimation of the effects of changes in the independent variables on the dependent variable, without any need to examine the Marshall-Lerner Condition. This aspect of these models can be considered as an advantage, but use of a trade balance formulation usually generates less information on the determinants of the trade flows.

Miles (1979)[15] examines the relationship between devaluation and trade balance and the balance of payments for 16 devaluations of 14 countries in the 1960s, individually and on pooled data, using seemingly unrelated and pooled cross-section time series regression techniques. The equations involved are:

[14] It should be obvious to the reader that, elasticities and trade balance approaches are the indirect and direct representation of a solution methodology for the same problem, i.e. the investigation of the relationship between devaluations and trade balance movements.

[15] Included countries are the United Kingdom, Denmark, France, Finland, Ireland, Iceland, Spain, New Zealand, Costa Rica, Ecuador, Guyana, Israel, Sri Lanka, the Philippines.

$\Delta(TB/Y)i = a_0 + a_1\Delta(g_i - g_R) + a_2\,\Delta(M_i - M_R) + a_3\,\Delta(G_i - G_R) + a_4\,\Delta ER_i$

(trade balance equation)

$\Delta(BP/Y)_i = b_0 + b_1\Delta(g_i - g_R) + b_2\,\Delta(M_i - M_R) + b_3\,\Delta ER_i$

(balance of payment equation),

where:

TB_i: the level of trade balance in country i, f.o.b. exports of goods minus c.i.f. imports, in domestic currency except for Ecuador and Spain,

BP_i: the level of the balance of payments in country i, the official settlements definition was used,

Y_i: the level of output in country i, GNP measured in domestic currency,

g_i ,g_R : growth rates of income in country i and the rest-of-world R, log differences are used to compute growth figures,

M_i, M_R: the ratio of the average level of high-powered money to output,

G_i, G_R: the ratio of government consumption to output

ER_i: the exchange rate of country i, all 'rest of the world' variables are constructed using a nominal-GNP-weighted average of the variable in various countries.

Applying the techniques mentioned above[16], Miles concluded first that "a devaluation did not improve the trade balance but improved the balance of

[16] All yearly observations were taken from IMF/IFS.

payments" and second he found the non-existence of a relation between a devaluation and real variables. These are, in fact, counter-intuitive findings, since the traditional prediction says that devaluations (should) improve the trade balance.

Himarios (1985)[17] identified some of the deficiencies in Miles's methodology and tests. Re-specifying the trade balance equation, Himarios showed that devaluations did affect the trade balance, in the traditionally predicted direction.

Himarios offered the following equations, i being the country index:

$$\Delta(TB/Y)_i = b_0 + b_1\,\Delta g_i - b_1^{*}\Delta g_R + b_2\,\Delta M_i - b_2^{*}\Delta M_R + b_3\,\Delta G_i + b_3^{*}\,\Delta G_R + \gamma_0\Delta ER_{t,i} + \gamma_1\Delta ER_{t-1,i} + \ldots + \gamma_n\Delta ER_{t-n,i}$$

$$B_t = a_0 + a_1^{*}Y_t^{*} + a_1 Y_t + a_2\,M_t + a_2^{*}M_t^{*} + a_3 G_t + a_3^{*}G_t^{*} + a_4 q_t + a_5 q_{t-1} + a_6 q_{t-2} + a_7 r_t + e_t\,,$$

where:

B = trade balance in foreign currency,

Y (Y^*) = domestic (foreign) income,

M (M^*) = domestic (foreign) money, M1 definition of money was used,

G (G^*) =domestic (foreign) government expenditure,

q = the real exchange rate,

r = opportunity cost of money,

[17] Included countries are Costa Rica, Ecuador, Finland, France, Iceland, Israel, the Philippines, Spain, Sri Lanka, and the UK

The real trade balance and real foreign variables were obtained by dividing the dollar value by a dollar-converted foreign price index. All other real variables were obtained by using the home price index.

In Himarios (1985), the variable definitions are the same as of the Miles's. Moreover, Miles's model can be thought of as a special case of Himarios's specification. Depending on the tests performed using this equation Himarios showed that Miles inappropriately put restrictions on the lagged exchange-rate terms.

After estimating[18] this last equation using the same data as Miles's, Himarios stated that the traditional view on exchange rate-trade balance relationship was supported.

Himarios (1989)[19] examines 60 devaluation episodes during the periods 1953-1973 and 1975-1984, using the following equation:

$$TB_t = b_0 + a_1 (L) Y^* + a_2 (L) Y + a_3 (L) M + a_4 (L) G + a_5 (L) R + a_6 (L) r + a_7 ED + a_8 (L) M^* + a_9 (L) G^* + a_{10} (L) r^*$$

where:

[18] All variables except for the money supply and exchange rates, are defined as in Miles (1979).

[19] Included countries are Ecuador, Egypt, France, Greece, India, Indonesia, Italy, Korea, Mexico, Norway, South Africa, Sri Lanka, Sudan, Thailand, and Zambia.

$a_k(L)$=a polynominal in lag operator L,

TB= real trade balance,

Y (Y*)=domestic (foreign) real income,

G (G*)=domestic (foreign) real government expenditures,

M (M*)= domestic (foreign) real money balances,

R= the real exchange rate (e.P*/P),

e = the domestic currency price of one unit of foreign currency,

P (P*)= domestic (foreign) price levels

r (r*)= domestic (foreign) opportunity cost of holding money,

ED= expected(as of period t) devaluation for period (t+1).

The estimates[20] of this equation were satisfactory for both fixed exchange rate and flexible exchange rate periods, and supported the view that devaluation can be a useful tool in affecting changes in real variables and the structure of the economy.

Bahmani-Oskooee (1985) [21] uses the following specification for 1973-1980 period using quarterly data [22]:

$$TB_t = a_0 + a_1 Y_t + a_2 YW_t + a_3 M_t + a_4 MW_t + \Sigma_{I=o}^{n} b_I (E/P)_{t-I} + u_t$$

[20] All data were taken from IMF/IFS and IMF Direction of Trade Statistics.

[21] Included countries are Greece, India, Korea, and Thailand.

[22] Data were taken from IMF/IFS, IMF Direction of Trade Statistics, OECD Statistics of Foreign Trade Series A.

where:

TB =trade balance (excess of exports over imports), index of domestic currency value of exports minus imports,

YW =world income, expressed as an export weighted index,

M =domestic high-powered money, expressed as an index,

MW =rest of the world high-powered money,

Y =level of the real output,

E =exchange rate, index of export weighted effective exchange rate,

P =domestic price level, index of wholesale prices.

Having estimated the model, evidence supporting the J-curve hypothesis was obtained.

An interesting application, despite its simple appearance, is Bahmani-Oskooee (1991).[23] Using quarterly data for the period 1973-1988[24], it was stated that for most countries devaluation improved the trade balance. The cointegration equations are:

$$(EX/IM)_t = a + b\,(P^*E/P)_t + e_t$$

$$(P^*E/P)_t = a' + b'\,(EX/IM)_t + e_t'$$

where:

[23] Included countries are Argentina, Bahamas, Bangladesh, Greece, India, Korea, the Philippines, and Thailand.

[24] Data were taken from IMF/IFS and IMF Direction of Trade Statistics.

P* =foreign price level,

E =nominal effective exchange rate (import weighted),

P =domestic price level,

P*.E/P: real effective exchange rate,

EX: volume of exports,

IM: volume of imports,

EX/IM: a measure of trade balance.

In this model, the trade balance is defined as the ratio of the exports to imports, which has not been encountered in the former model specifications. This definition of the trade balance is free of units, and insensitive to nominal-real distinction. It is clear that an increase in EX/IM reflects a trade balance improvement.

There are two more of recent studies, Arize (1994) and Shirvani and Wilbratte (1997), using the cointegration approach and indicating that devaluations do improve the trade balance in the long run.

The studies discussed in this section are all parametric studies except Rose (1991) [25] which used the non-parametric Locally Weighted Regression (LWR) technique to estimate the trade equations.[26] LWR technique estimates regression surfaces in a moving average manner. For any point of observation, the closest points are selected and the estimate is obtained as a weighted average of the

[25] Included countries are the UK, Canada, Germany, Japan, and the US.

[26] Rose employed a set of parametric techniques as well.

regressand values of these closest points. Despite its similarity to kernel estimation techniques that we are using in this thesis, the treatment of the 'closeness of points' is not rigorous enough in the LWR procedure. Rose concluded that there was no significant relationship between trade balance and other variables involved.

CHAPTER 3

METHODOLOGY

The aim of this chapter is to present the kernel estimation techniques and kernel estimators that we are employing in this study. While describing the techniques we follow Ullah and Pagan (1999), Ullah and Lee (1999) and Yatchew (1998). The description of the methodology will be followed by a comparison of parametric and nonparametric regression techniques.

3.1. LCLS (Local Constant Least Squares) Estimators

Consider the stochastic process $\{y_t, x_t\}$, $t=1,2,\ldots,n$; where y_t is a scalar and $x_t=(x_{t1},x_{t2},\ldots,x_{tk})$ is (1xk) vector which may contain the lagged values of y_t. Our regression model is $y_t = m(x_t) + u_t$, where $m(x_t) = E(y_t|x_t)$ is the true but unknown regression function and u_t is the error term such that $E(u_t|x_t)=0$ and $Var(u_t|x_t)=\sigma^2$.

An approach to estimate the unknown $m(x_t)$ is to use the consistent nonparametric kernel regression estimator which is a 'Local Constant Least Squares' (LCLS) estimator. Taking the Taylor series expansion of $m(x_t)$ around x, we obtain:

$y_t=m(x_t)+u_t= m(x)+v_t$,

where $v_t=(x_t-x)m^{(1)}(x)+(1/2)(x_t-x)^2m^{(2)}(x)+\ldots+u_t$, $m^{(s)}(x)$ is the s-th derivative of m(x) at $x_t=x$. In order to obtain the LCLS estimator we solve

$$\min \sum_{t=1}^{n} v_t^2 K_{tx} = \min \sum_{t=1}^{n} (y_t - m(x))^2 K_{tx}$$

with respect to constant m(x). Here $K_{tx}=K((x_t-x)/h)$ is a decreasing function of the distances of x_t from x. The window width, h, goes to zero as n tends to infinity. It is smoothing parameter which determines the speed of decrease of weights as the distance between x_t and x increases.

Our LCLS estimator is:

$$\hat{m}(x) = \frac{\sum_{t=1}^{n} y_t K_{tx}}{\sum_{t=1}^{n} K_{tx}} = \left(i' K(x) i\right)^{-1} i' K(x) y$$

where K(x) is (nxn) diagonal matrix and i is (nx1) column vector of unit elements. We can write the leave-one-out estimator as:

$$\hat{m}(x) = \frac{\sum_{t'=1,t'\neq t}^{n} y_{t'} K_{t't}}{\sum_{t'=1,t'\neq t}^{n} K_{t't}}$$

where $K_{t't}=K((x_{t'}-x_t)/h)$. Since we assume h goes to zero as n tends to infinity, $x_t-x=o(h)$ goes to zero as well. So $E(v_t)$ goes to zero as n tends to infinity. Under certain conditions on h, K, and m(x), the estimator of m(x) will be consistent. It should be noted that, in small samples, the LCLS estimator will be a biased estimator.

3.2. LLLS (Local Linear Least Squares) Estimators

A Local Linear Least Squares (LLLS) estimator, on the other hand, has a better small sample bias and mean square error. First, we take first order Taylor series expansion of $m(x_t)$ around x:

$$y_t = m(x_t) + u_t = m(x) + (x_t - x)m^{(1)}(x) + v_t$$

$$= \alpha(x) + x_t\beta(x) + v_t = X_t\delta(x) + v_t,$$

where $\alpha(x)=m(x)-x\beta(x)$, $\delta(x)=[\alpha(x)\beta(x)']'$, and $\beta(x)=m^{(1)}(x)$. To obtain the LLLS estimator of $\delta(x)$ we solve:

$$\min \sum_{t=1}^{n} v_t^2 K_{tx} = \min \sum_{t=1}^{n} (y_t - X_t\delta(x))^2 K_{tx}$$

The LLLS estimator is given by:

$$\bar{\delta}(x) = (X'K(x)X)^{-1} X'K(x)y$$

The LLLS estimators of $\alpha(x)$ and $\beta(x)$ can be calculated as $\bar{\alpha}(x) = [1 \quad 0]\bar{\delta}(x)$ and $\bar{\beta}(x) = [0 \quad 1]\bar{\delta}(x)$. It is clear that when X=i, our estimator is nothing but the Nadaraya-Watson LCLS estimator. The kernel function K(.) is defined as before.

In this study, we use Racine's NPREG (NonParametric REGression) package to carry out the above calculations. The program uses the product Epanechnikov kernel for K(.) in the above formulae. The Epanechnikov kernel is the optimal kernel based on a variational calculus solution minimizing the integrated mean square error of the kernel estimator. The univariate Epanechnikov kernel is given by $K(z_j) = \frac{3}{4\sqrt{5}}(1 - \frac{1}{5}z_j^2)$ if $z_j^2 < 5.0$ and zero otherwise, and the multivariate product Epanechnikov kernel for $z=(z_1,z_2,\ldots,z_p)$ is given by $K(z) = \prod_{j=1}^{p} K(z_j)$.

3.3. Estimators of Partial Derivatives

In the previous sections we have briefly described the LCLS and LLLS estimators of the conditional mean, m(y|x). In this section, we turn our attention to the estimation of the partial derivatives of the conditional mean with respect to the regressors, since the elasticity expressions involve these partial derivatives.

Consider q+1=p economic variables Y, X_1, X_2,..., X_q where Y is the dependent variable and the X's are regressors. The regression function m(x) is a real-valued function of x and we can write:

$$y_i = m(x_i) + u_i = m(x_{i1}, x_{i2}, \ldots, x_{iq}) + u_i,$$

with $E(u_i|X=x)=0$ and $Var(u_i|X=x)=\sigma^2$.

Regarding linear $m(x) = x_1\beta_1 + ... + x_q\beta_q$, $\beta_j = \partial m(x) / \partial x_j$ is the j-th regression coefficient, or first partial derivative, reflecting the change in Y due to a unit change in x_j. β_j is fixed for all x. When m(x) is nonlinear, then $\partial m(x) / \partial x_j$ is not fixed but varies with x. We can calculate a fixed value of the derivative at the mean value of data on x_i.

We can develop the derivatives of m(x) without assuming an a priori parametric function as follows:

First, the response coefficient of Y with respect to a change in one of the regressors x_j can be expressed as:

$$\beta_j(x) = \frac{\partial m(x)}{\partial x_j} = \lim_{h \to 0} (2h)^{-1} \left[m(x + e_j h) - m(x - e_j h) \right]$$

where e_j is a (qx1) vector with a one in the j-th position. This $\beta_j(x)$ is a varying response coefficient since it is a function of x. We can define a fixed response coefficient as $\beta(\bar{x})$ where $\bar{x} = (\bar{x}_1, ..., \bar{x}_q)$, or as $\bar{\beta}(x) = E\beta(x)$. If m(x) is linear, the first partials of m(x) are equivalent to regression coefficients.

Second, we can obtain $\beta_j(x)$ by taking the analytical derivative of m(x). Realizing that the conditional mean of Y given X=x is of the form

$$E(Y \mid X = x) = m(x) = \frac{\int y f(y, x) dy}{f(x)} = \frac{g(x)}{f(x)}$$

we have

$$m(x)f(x) = g(x)\text{, so}$$

$$\beta_j(x) = f(x)^{-1}\left[\frac{\partial g(x)}{\partial x_j} - \frac{\partial f(x)}{\partial x_j}m(x)\right]$$

Finally, if we are interested in the global behaviour of the shape of our estimated function, then we can use the expected (average) value of the derivative over all x:

$$\overline{\beta}_j = E\overline{\beta}_j(X) = \int \beta_j(x)f(x)dx$$

or the weighted average:

$$\overline{\beta}_j^* = E\beta_j(X)w(X),$$

where w(x) is a weight function. Density function of X is a natural candidate for being a weight function.

Having defined the derivatives of m(x), the remaining task is to estimate these derivatives. Provided that h is small enough, or at least tends to zero as n goes to infinity, a consistent estimator of $\beta_j(x)$ is:

$$b_j(x) = \frac{1}{2h}\left[m(x + e_j h) - m(x - e_j h)\right]$$

But since we do not know $m(x \pm e_j h)$, this is not operational. So, we can use the modified estimator:

$\widetilde{\beta}_j(x) = \frac{1}{2h}\left[\hat{m}(x + e_j h) - \hat{m}(x - e_j h)\right]$ as described in Ullah (1998) and Rilstone and Ullah (1989). In fact, this procedure is a numerical approximation of first derivatives using standard two-sided finite difference formula.

The software that we employ, performs the jobs of conditional moment estimation and partial derivative estimation according to the theoretical framework described above. Since we are using logarithmic data, the estimated partial derivatives correspond to the elasticities of trade volume variables that we are seeking for.

At the end, we can compare the parametric and nonparametric estimation methods as follows:

- In parametric models, the type of the relationship between the variables involved is a priorily specified using a functional form, hence forcing the results to remain in a restricted domain. Whereas a nonparametric model just tries to capture the relationship among variables in a more liberal fashion. Performing in this way, a non-parametric model extracts only the information contained in the data, without influencing it.
- As far as the regression coefficients are concerned, estimation of a parametric model generates a single coefficient estimate for each variable. On the other

hand, using a nonparametric setting on the same set of data, we can obtain partial derivatives with respect to each variable, at each observation index. So, nonparametric methods allow us to generate more information from the same data. For example, for a time series data set, the nonparametric technique provides us with the response of dependent variable with respect to changes in an independent variable at each specified time point, whereas a parametric model leaves us with a single coefficient estimate for each variable, for the whole study period.

- Computational cost is higher for non-parametric techniques that we employ, since, first large sets of data are required to decrease or remove small-sample bias, and second the number of arithmetical operations involved is greater. Obviously, the requirement of large data sets discourages researchers in most cases. This is related to the well-known 'curse of dimensionality' issue. One can visit Zaman (1996,pp.121-123) for a good discussion of the issue.

CHAPTER 4

MODEL SPECIFICATION AND DATA

Data is an essential item in empirical studies, since without it one cannot perform any kind of empirical analysis. At the same time, data can be an important problem source, since its characteristics and quality may affect the results considerably. The aim of this chapter is to describe the data related problems that we have encountered in this study, and while doing that our motivation is to provide a 'not complete but useful guide' for the researchers planning to work on the same or similar topic in the future. In that respect, the outline of this chapter is as follows: First, we will recall the basic structure of the elasticities approach models, since we are focusing on them and performing same sort of analysis, and define the general form of the variables involved. Second, we will provide a not so long discussion of the 'choice of variables' problem referring to early literature. Third we will describe our own choice of variables for this study and we will close by giving the availability information on our data.

4.1. Basic Structure Of The Leading Models

As we remember, there defined two basic estimated equations in elasticities approach models, namely the import and export demand functions. While estimating the import (export) demand function, we regress some sort of import (export) volume variable on relative import (export) price and real domestic (world) income. Upon this minimal setting, an exchange rate variable could also be involved in the model specifications. When we define all variables in natural logarithms then it is apparent that these functions reflect the usual behaviour of all demand functions, i.e. demand increases as income increases and price decreases, assuming no inferiority and non-giffen characteristic. Defining all variables in natural logarithms also allows us to interpret the estimated coefficients as elasticities with respect to the corresponding variables.

4.2. Choice Of Variables Problem

Having specified our model, a critical issue is the impact of variable definitions on the results obtained. A good discussion of such issues is put forward in Goldstein and Khan (1985), and though it is not a very recent study, the validity of the arguments made has not diminished yet. So, we will simply focus on their arguments.

As indicated in Goldstein and Khan (1985:1054), conventional models treat either import (export) quantities or import (export) prices as dependent variables. However, trade data is available in value terms for most of the time, i.e. the product of quantities and prices, and there are two ways that can be followed: First, the value data can be converted into volume data using appropriate deflators, such as the actual transactions prices for imports and exports, but we may face some problems due to possible poor measurements of these prices, as stated in Goldstein and Khan (1985). First, if imports (exports) is correctly measured but there is some measurement error in the price data then the estimated coefficients on price variables will be biased toward zero. Second, when we use the price data in our model, both to deflate the value data and as explanatory variables, then we introduce negative correlation between the errors in the dependent variable and the errors in the explanatory variable, hence biasing the estimated price elasticity toward minus one. If the price data is not available, as a remedy, we can rely on unit value indices or wholesale price indices. Unit value indices are simply obtained through the division of value of imports (exports) by the respective physical quantities, but this procedure may yield unrealistic figures especially when quite different products are combined into one index. Another potential danger with the use of unit value indices and wholesale price indices as price proxies is the biasedness of estimates (Goldstein and Khan, 1985,pp.1055-1056).

Second, facing very poor import and export price data, we may choose to work directly with the value data as dependent variables and can obtain the volume price elasticity figures using the fact that volume price elasticity of demand is equal to the value elasticity minus one. As a matter of fact, if one's aim is not to estimate the elasticities but to forecast imports and exports, working with value data is more advantageous (Goldstein and Khan, 1985,p.1056).

In the imperfect substitutes framework, the import and export demand functions are increasing in domestic and world real incomes respectively. The domestic real income can be defined as the real GDP or GNP. When these are not directly available their nominal counterparts can be deflated by some price level variable to obtain real figures. On the other hand, world real income figures cannot be obtained in such a direct way, rather they are computed as some weighted average real GDP or GNP figures. A natural candidate for the set of weights for each individual country is the export shares of the countries faced, as implemented in Bahmani-Oskooee (1986). In more recent studies, such as Bahmani-Oskooee and Niroomand (1998) and Bahmani-Oskooee (1998), this type of definition has been left and world real income has been proxied by the index of industrial production in industrial countries, i.e. the industrial country aggregate of the IMF.

The second independent variable in both import and export demand equations is a relative price variable. Before defining our relative price variable in the import model, we should think about the behaviour behind the substitution of goods: Following the explanation of Goldstein and Khan (1985) we can say that, consumer allocates her expenditure between tradeable and non-tradeable goods first, then she allocates her expenditure on tradeables between imports and domestic tradeables. For that reason, there is only one relevant relative price variable to appear in the import model, the one between imports and domestic tradeables (Goldstein and Khan, 1985, p.1062). Turning our attention to the estimation side, we realize that price indices for domestic tradeables do not exist. As a proxy, one can employ the wholesale price index, consumer price index or implicit deflator of gross domestic product. In that way, we can obtain the relative import price as the ratio of the import price index to one of these proxies. You may recall that, in the case that an import price index does not exist we proxy it using an import unit value index. We define our relative price variable for the export model in a similar fashion. It is basically the ratio of the country's export price index to the world export price index. Again, when the export price index for the country is not available, we replace it with an export unit value index and world export price index can be computed using the same weighting procedure as in the computation of world real income. Export unit value index of the IMF's industrial country aggregate is a good proxy for the world export price index.

An exchange rate variable is the last item in our independent variable list. Databases are generally very rich as far as the exchange rate series are concerned, but we are interested in effective exchange rates, either nominal or real, since they are weighted with and reflect the changes relevant to trade flows. For instance, the general procedure to calculate a nominal effective exchange rate (NEER) for a country C consists of the steps of collecting the bilateral exchange rates together and then, weighting each bilateral exchange rate with the weight of the country faced in country C's total exports.[1] In order to calculate a real effective exchange rate (REER), this procedure can be modified by including the price levels in all countries in the form of bilateral ratios. If each of the bilateral exchange rates is expressed as foreign currency per unit of national currency, then an increase in the NEER or REER reflects an appreciation of the domestic currency is expected to cause an improvement in the trade balance, and vice versa.

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[1] Documentation in the IMF/IFS version 1.1.53 on CD-ROM provides the minimal necessary information on such computational procedures. One can also refer to Bahmani-Oskooee (1995) to see an application of such procedure for 22 LDCs between 1971:1-1990:4.

4.3. Model Specification Of This Study

Our specification of the trade equations is not much different from the ones of the recent literature. As a matter of fact, we do not impose a functional form a priori, but with a slight misuse of the terminology we can use the term 'equation' here. Our import and export demand equations, dropping the time subscripts, are in the form of:

$$\log M = m[\log(PM / PD), \log Y] + u, \quad \text{and}$$

$$\log X = x[\log(PX / PXW), \log YW] + v .$$

In this specification, starting with the import model, M volume of imports expressed as an index. Though it can be calculated as described above via deflating the nominal figures by an import price index, we preferred to use the import volume index data provided by the IMF/IFS. PM and PD import price and domestic price level respectively. Since an import price index is not available for all countries included, we substituted it by the index of the unit value of imports. PD is taken as the consumer price index (CPI) for each country. The ratio of the two gives us the relative import price. Domestic real income is defined as the real GDP.

In the export model, X is the volume of exports expressed also as an index. As we do in the case of imports, we have used the index data provided by the IMF/IFS. PX is defined as the export price, but due to lack of data for some countries, it is proxied by the index of unit value of exports. PXW is the world export price proxied by the export unit value index for the IMF's industrial country aggregate and the ratio of PX to PXW gives us the relative export price. YW stands for the world real income and it is defined by the index of industrial production for the IMF's industrial country aggregate. u and v are the error terms associated with each observation as usual.[2] Base year is 1995 for all index and real data. Except for volumes of imports and exports, our choice of data and variables is the same as of the Bahmani-Oskooee (1998).

4.4. Data Sources and Availability

The data that has been used in this study were compiled from the International Financial Statistics of the International Monetary Fund (IMF/IFS in short). It is available in both hardcopy and electronic forms and it is the principal statistical publication of the Fund since January 1948. In this subsection, we will summarize useful information on international trade data in the IFS.

- Regarding the exchange rates and exchange rate arrangements, several different data series are provided, such as the market rate, official rate etc. Market rate is used to describe exchange rates determined largely by market forces and official rate is an exchange rate set by the authorities. When a country is maintaining multiple exchange arrangements, the rates

[2] All data are taken from the IMF/IFS version 1.1.53 on CD-ROM.

are labelled principal rate, secondary rate, and tertiary rate. All these are calculated and presented as both end of period and period average values. Other data series in the IFS are converted from national currency to USD and from USD to national currencies using the period average exchange rates. Nominal Effective Exchange Rate (NEER), Real Effective Exchange Rate (REER) indices compiled by the IMF Research Department and exchange rate series expressed against ECU are also available.[3]

- Trade-related data are given under the heading of 'International Transactions'. Merchandise exports f.o.b. and imports c.i.f. are given according to the United Nations International Trade Statistics: Concepts and Definitions (1982), based on the customs statistics reported. The data for the merchandise imports f.o.b. are either obtained from the statistical authorities of each country or calculated by applying the c.i.f./f.o.b. factors that are taken from the balance of payments statistics. The indices for the volume of imports and volume of exports are calculated from reported volume data for individual commodities weighted by reported values. The indices for the unit value of exports and the unit value of imports are Laspeyres with weights derived from the transactions data. Indices for export and import prices are also available, though not for all countries.[4]
- Real GDP and CPI data are also accessible in the database.

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[3] For a detailed description of the method of deriving the IFS exchange rates is given in the IFS Supplement on Exchange Rates, No. 9 (1985).

[4] For a detailed description of trade statistics, visit the IFS Supplement on Trade Statistics, No. 15 (1988)

- The database, especially the CD-ROM version[5], provides easy access to the data, however, one should be familiar with the structure and use of the metadata associated with each data series. These are generally given in files accompanying the database package and since they are the data items describing other data, they play an essential role in empirical studies. Time series code associated with each data series is the most informative metadata item of IFS. This is a thirteen digit alpha-numeric code carrying the following information:
    - Country/area code (first three characters)
    - Subject/topic code (characters 4 to 8)
    - Version code (character 9)
    - Publication code (character 10)
    - Partner country code (characters 11 to 13)[6]

The time series codes of the data series that we have used, are provided in Tables 1 through 6 in APPENDIX B. The relevant part of these data can also be seen in the same appendix, for all countries included.

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[5] Version 1.1.53 is dated February 1999.

[6] For a description of the meaning and use of these codes, see the read.me directory in the IFS CD-ROM, ver 1.1.53.

CHAPTER 5

DISCUSSION OF RESULTS

In Chapter 3, we have described the basics of non-parametric kernel estimation, and we have defined our trade flow models in Chapter 4. This chapter is devoted to the presentation and discussion of the estimates of trade elasticities for six developed countries, which are Australia, Germany, Japan, Norway, the United Kingdom, and the United States.

We are applying non-parametric kernel estimation techniques and application of these require considerably large sample sizes. So, availability of data is an important determinant of selection of countries. In that sense, our selection of countries seems not to be very systematic. However, having a look at the countries that we have examined, it is observed that they are all developed countries and reflect a good geographical distribution.

The methodology that has been presented in Chapter 3 was applied on our data by using NPREG package of Racine.[1]

[1] This is an ANSI-C based code operated in DOS environment and performs all necessary computations with high level of efficiency.

Our models are as described in Chapter 4, in which all variables are defined following Bahmani-Oskooee (1998), except for the volume variables. We use quarterly data that are taken from IMF/IFS. The sample periods and sizes can be seen in Table 7.

TABLE 7 SAMPLE PERIODS		
AUSTRALIA	1966:III-1998:IV	130 obs.
GERMANY	1960:I-1995:IV	144 obs.
JAPAN	1960:I-1998:IV	156 obs.
NORWAY	1966:I-1998:IV	132 obs.
UK	1957:I-1998:IV	164 obs.
US	1957:I-1998:IV	164 obs.

The rest of this chapter consists of three sections: In the first one, the structure of our estimates is described. Our Local Linear Least Squares estimates of trade elasticities are given in the second section in a comparative fashion. Finally, in the third section, we summarize our main findings.

5.1. The Structure Of The Estimates:

While obtaining our estimates, the first stage is the execution of the NPREG program which provides us with the conditional means (regression surface) and pointwise partial derivatives. During the execution, optimal bandwidths, scale factors for variables, and associated standard errors are obtained. In this study, our major concern are the partial derivative estimates and standard errors associated with them. Execution of the program provides a partial derivative estimate at each point of our sample, with respect to each regressor. In our case, this derivative estimate is the partial derivative of a volume variable with respect to a price or income variable.

Since we define our variables in logarithms, these partial derivatives are price and income elasticities of trade flows, evaluated at each sample point. Once we have the pointwise elasticities, we can trace the behaviour of trade flows over time. Since we do not have an index-invariant measure reflecting the global behaviour of our variables, the second stage is the extraction of point estimates of elasticities from our pointwise derivative estimates.

A point estimate can be obtained by averaging the pointwise elasticities using equal weights. If $\hat{\beta}_j(x_i)$ denotes the partial derivative of the conditional mean with respect to j-th regressor at i-th observation, then our point estimate is given by:

$$\overline{\beta}_j = \frac{1}{T} \cdot \sum_{i=1}^{T} \hat{\beta}_j(x_i), \text{ where T is the sample size.}$$

A second way to obtain a point estimate to calculate a weighted-average of the pointwise elaticities, using the density function of the regressor under consideration as the weighting function. This weighted-average is nothing but the expected value of the pointwise estimates, as offered by Ullah and Pagan (1999). The needed density function is non-parametrically estimated by using NPDEN code of Racine. After inputting the data series the density of which to be estimated, program gives us the density ordinates at each data point and the associated standard errors. Since the sum of the estimated density ordinates exceeds unity, figures are adjusted such that the sum is normalized to one. If $\hat{\beta}_j(x_i)$ again denotes the partial derivative of the conditional mean with respect to j-th regressor at i-th observation, and $\hat{f}_j(x_i)$ denotes the density ordinate for regressor j at observation i, then the point estimate is given by:

$$\overline{\beta}_j^f = \sum_{i=1}^{T} \hat{\beta}_j(x_i)\hat{f}_j(x_i) / \sum_{i=1}^{T} \hat{f}_j(x_i)$$, where T is the sample size.

As we have seen, we are able to generate more information using the nonparametric kernel estimation technique, as compared to cases in which parametric techniques are employed. To see why, one can consider a parametric estimation technique, i.e. the Ordinary Least Squares, and can see that only a single coefficient is estimated for each regressor, which is assumed to be valid for the whole study period. On the other hand, through nonparametric kernel estimation, we obtain a response coefficient at each observation index, i.e. at each time point. Furthermore, we can compute point estimates based on our pointwise estimates.

Using our nonparametric point estimates we can check whether the Marshall-Lerner Condition is satisfied for the countries under consideration, and can compare our results to the ones of the recent literature. More interestingly, we can check for the satisfaction of the condition on a time basis, using our pointwise estimates.

5.2. Local Linear Least Squares (LLLS) Results

We have estimated our models first using Local Constant Least Squares (LCLS) estimators. These estimates can be seen in Appendix C. Having a look at these figures, it is seen that the MLC is not satisfied for our six countries. However, it is clear that our LCLS estimates have some potential bias since our samples are not large enough.[2] So we have repeated our regressions using Local Linear Least Squares (LLLS) estimators. As pointed out in Chapter 3, LLLS estimators have better small sample properties, eg. they remove bias to a large extent and generate smoother regression surfaces. Our LLLS estimates of trade elasticities can be seen in Tables 8, 9, and 10 below.

Using equally weighted average (ordinary average) point estimates, it is observed that import price elasticity of Japan and export price elasticity of Australia do not have the expected negative sign as seen in Table 8. The MLC is satisfied for Australia. Although the export price elasticity of Australia does not have the correct sign, the magnitude of the import price elasticity offsets the magnitude of the export price elasticity toward satisfaction of the MLC. The sum of absolute elasticities of Norway is close to unity, without satisfying the MLC.

TABLE 8
LLLS PRICE ELASTICITIES WITH EQUAL WEIGHTS

LOCAL LINEAR LEAST SQUARES	IMPORT PRICE ELASTICITY	EXPORT PRICE ELASTICITY
Australia	-1.347	0.198
Germany	-0.250	-0.315
Japan	0.246	-0.401
Norway	-0.212	-0.731
UK	-0.093	-0.262
US	-0.300	-0.226

[2] A large sample consists of at least 2500 observations according to NPREG Manual Version 2.2. by Racine.

TABLE 9
LLLS PRICE ELASTICITIES WITH DENSITY WEIGHTING

LOCAL LINEAR LEAST SQUARES	**IMPORT PRICE ELASTICITY**	**EXPORT PRICE ELASTICITY**
Australia	-1.581	0.443
Germany	-0.211	-0.594
Japan	0.119	-0.535
Norway	-0.159	-0.870
UK	-0.115	-0.442
US	-0.420	-0.260

TABLE 10
LLLS INCOME ELASTICITIES WITH EQUAL WEIGHTS

LOCAL LINEAR LEAST SQUARES	**IMPORT MODEL**	**EXPORT MODEL**
Australia	1.009	1.998
Germany	1.890	1.713
Japan	2.019	2.337
Norway	1.241	2.228
UK	1.741	1.428
US	1.753	2.087

Table 9 presents the density weighted point estimates of import and export price elasticities. Examining these figures, we see that import price elasticity of Japan and export price elasticity of Australia, again, do not possess the correct sign. The MLC is satisfied for Australia and Norway. As in the previous case, magnitude of the import price elasticity of Australia offsets the magnitude of its positive export price elasticity. Income elasticities of import and export demand functions which are presented in Table 10 are all positive as expected.

An important issue is how our estimates compare to the ones of the preceding literature. Bahmani-Oskooee and Niroomand (1998) estimated the trade elasticities for 30 countries using Johansen-Juselius Cointegration technique. Their estimates of trade elasticities for our six countries are given in Tables 11 and 12.

TABLE 11
BAHMANI-OSKOOEE AND NIROOMAND (1998)
PRICE ELASTICITIES

	IMPORT PRICE ELASTICITY	EXPORT PRICE ELASTICITY
Australia	-0.57	-0.12
Germany	-0.55	0.75
Japan	-0.97	-0.49
Norway	0.38	0.19
UK	-0.28	-0.36
US	-0.34	-1.60

TABLE 12
BAHMANI-OSKOOEE AND NIROOMAND (1998)
INCOME ELASTICITIES

	IMPORT MODEL	EXPORT MODEL
Australia	1.10	1.91
Germany	1.98	2.58
Japan	0.46	1.22
Norway	2.38	0.37
UK	1.76	1.41
US	2.07	0.72

In Table 11, it is observed that the import price elasticity of Norway and export price elasticities of Germany and Norway do not have the expected negative sign; and the MLC is satisfied for Japan and the United States. All income elasticities in Table 12 are positive as expected.

It is apparent that, our results do not match the ones of Bahmani-Oskooee and Niroomand (1998). This mismatch can be attributed to three factors: The first of these is the difference of methodologies. Secondly, the study periods are not the same. Finally, the treatment of import and export volumes differ, as mentioned before in Chapter 4. Despite these differences, the numerical gap between our estimates and the ones of Bahmani-Oskooee and Niroomand (1998) is not considerably wide.

We have also estimated the trade elasticities for our sample countries using Ordinary Least Squares (OLS) estimators, for comparison purposes. While doing this, we have used the model specification of Bahmani-Oskooee and Niroomand (1998) which was presented in Chapter 2, except for the definitions of import and export volume variables. So, this OLS application loosely combines Bahmani's methodology with our data. The OLS estimates of trade elasticities are given in Table 13 and Table 14. The details of our OLS estimates are given in Appendix D.

TABLE 13
OLS PRICE ELASTICITIES

ORDINARY LEAST SQUARES	**IMPORT PRICE ELASTICITY**	**EXPORT PRICE ELASTICITY**
Australia	-0.361	-0.972
Germany	-0.049	-0.193
Japan	-0.207	-0.793
Norway	-0.161	-0.155
UK	-0.053	0.404
US	-0.070	-1.153

TABLE 14
OLS INCOME ELASTICITIES

ORDINARY LEAST SQUARES	**IMPORT MODEL**	**EXPORT MODEL**
Australia	1.709	2.409
Germany	1.987	1.593
Japan	1.293	2.742
Norway	1.126	2.274
UK	1.567	1.236
US	1.798	1.451

Examining the figures in Table 13, it is seen that the export price elasticity of the United Kingdom does not have the correct sign, and the MLC is satisfied for

Australia, Japan, and the United States. The income elasticities of Table 14 are all positive as expected.

When our LLLS and OLS based results are compared, it is seen that Australia is the only common country for which the MLC is satisfied. On the other hand, our OLS based results are more similar to those of Bahmani-Oskooee and Niroomand (1998), i.e. the MLC is satisfied for Japan and the United States in both. Our LLLS based conclusions do not match Bahmani's results as far as the satisfaction of the condition is considered.

As mentioned before, using our pointwise elasticity estimates, we can trace the time behaviour of the trade elasticities, i.e. the way they change on a time basis can be analyzed. At this stage, since our aim is to see whether the MLC is satisfied or not, we leave the individual behaviours of import and export price elasticities aside and concentrate on the satisfaction of the MLC on a time basis.

In order to check for the satisfaction of the MLC at a given time index, the import and export price elasticities at that index are directly added and the resulting sum is compared to minus unity. If the sum is smaller than -1, then it is concluded that the MLC is satisfied. This interpretation of the condition is different from preceding literature, since we directly add up the elasticities and compare to -1 instead of adding up the absolute values of the elasticities and comparing the sum to unity. Our way of interpretation allows us to conclude that the MLC is satisfied even if one of the elasticities is positive, provided that its undesired effect is offset by the other elasticity figure.

Applying the short procedure described above, for each country we have computed the elasticity sums at all time points, compared these sums to –1, and obtained the time indices at which the MLC is satisfied as listed in Table 15.

As seen in Table 15, for all of our sample countries the MLC is satisfied for more than 25% of the time. For Australia and Norway, the condition is satisfied for 38% of the time. It was previously demonstrated that the MLC is satisfied for these two countries using the density-weighted point estimates as well. Tables 19 to 24 in Appendix E and Figures 1 to 6 in Appendix F provide the tables of our pointwise estimates of trade elasticities and plots of elasticity sums for the periods in which the MLC is satisfied respectively.

TABLE 15
SATISFACTION OF THE MLC ON TIME BASIS

COUNTRY	PERIODS OF SATISFACTION	% OF TIME MLC IS SATISFIED
Australia	1966:III-1970:II,1971:III-1971:IV 1972:II, 1973:I-1973:II 1974:III-1976:III, 1987:II-1988:III 1990:IV,1991:II-1991:III 1993:IV-1996:I	38%
Germany	1961:II-1967:III 1974:I-1975:I 1975:III-1976:III	25%
Japan	1966:IV-1967:I 1970:IV 1972:II-1978:IV 1994:II-1995:III	23%
Norway	1966:I-1970:II, 1970:IV-1971:II 1989:I, 1971:IV- 1972:II,1980:I,1983:I,1983:III 1989:III-1990:I,1991:IV-1992:I 1993:III,1994:III-1997:IV, 1998:IV	38%
UK	1957:I,1958:I-1958:III 1963:III-1965:IV,1966:IV 1967:III-1970:I,1972:III-1973:I 1975:I-1975:II, 1976:I,1978:II 1986:I-1986:II, 1989:IV,1992:IV	23%
US	1957:I-1959:I, 1963:II-1966:II 1968:III-1969:I,1971:IV-1972:III 1975:II, 1980:I-1980:III 1981:III-1983:II,1985:IV-1986:III 1987:I,1996:IV-1997:IV	30%

5.3. Summary

We have presented in this chapter that the MLC is satisfied for only Australia and Norway among our six sample countries. Having a look at our point elasticity estimates, it is seen that they are reasonable numerical figures, yet we are not able to resolve the parametric controversy on the MLC. This situation is probably due to the fact that each empirical study uses different methodologies, study periods, and variable definitions.

The main contribution of this study, in fact, is the generation of pointwise estimates of trade elasticities, which allows us to trace the satisfaction of the MLC on a time basis, as shown above. Since we have not completed the individual analyses of the time behaviour of the trade elasticities yet, there is a new door opening into further research and discussion.

CHAPTER 6

CONCLUSION

In Chapter 1, we have defined the basic motivation of our work as re-examining the issue of Marshall-Lerner Condition in the trade literature. We have utilized non-parametric kernel estimation techniques to re-assess the trade balance – exchange rates relationship and this study is the first to use the non-parametric methodology in testing for the Marshall-Lerner Condition.

We have defined the trade equations for Australia, Germany, Japan, Norway, the United Kingdom, and the United States; and have estimated these equations using quarterly data for different sample periods. We may not claim that we have been able to settle the issue. But this study has been able to generate new information that can be used for a deeper understanding of this issue. For example, we were able to identify sub-sample periods for all countries under consideration where the condition was satisfied. It is an important task to find out the circumstances under which the condition seems to be satisfied. We intend to pursue this in our future research work.

We have also been able to identify some of factors that might be responsible for inconsistent reporting of results in the relevant literature. First, the theoretical framework chosen may be an important determinant of the results. In this study we have used the 'imperfect substitutes model' as many other empirical studies did before. If this framework has some flaws, then all empirical studies based on it will be affected accordingly.

Second, not all studies employ the same type of trade equations. Variable definitions and functional forms differ from one study to another. So, the controversy may be a direct consequence of this. Even this study, which is non-parametric in nature, cannot isolate itself from the consequences of its choice of variables.

Third, the sample period over which the analysis is performed is an important factor contributing to the controversy. Use of different sample periods and data frequencies will probably result in different, sometimes even opposing, results.

Under the light of these points mentioned above, one can try estimating the trade equations using the same data set and different models, and can test the sensitivity of the results to model specification. Similarly, on the same model one can investigate the effects of the selection of different sample periods and data frequencies.

Another important issue, which was in fact out of the scope of this study, is the nature of the Marshall-Lerner Condition. We can address two problems regarding the condition. First, the condition is fairly static, as mentioned in Chapter 2, namely it ignores the dynamics of the interactions between variables involved. So, while focusing on the condition, an important part of the information contained in our data may stay hidden. Second, while stating the condition we assume 'balanced trade initially' and claim that the trade balance changes in a favourable direction, provided that the sum of absolute import and export price elasticities is greater than unity. In that respect, it is enough to check for the sum of the two elasticity figures to make a conclusion. However, the 'initially balanced trade' assumption may not be supported in a real-world setting, and the sum of the absolute elasticities may not be a sound measure.

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APPENDIX A

APPENDIX A

A DERIVATION OF THE MARSHALL-LERNER CONDITION[1]

In order to derive the Marshall-Lerner Condition, we first define the trade balance as:

$$N = p_1 c_1^* - \Pi p_2^* c_2$$

Here, p_1 is the home-currency price of the export good and c_1^* is the foreign demand for Home's exports; p_2^* is the foreign currency price of the import good and c_2 is the domestic demand for the foreign good. Π is the exchange rate measured in units of home currency per unit of foreign currency.

The change in N can be written as:

$$dN = p_1 c_1^* (\dot{p}_1 + \dot{c}_1^*) - \Pi p_2^* c_2 (\dot{\Pi} + \dot{p}_2^* + \dot{c}_2)$$

where $\dot{a}$ is da/a.

The demand of foreigners for the home good depends on the prices of home and foreign goods and on foreign income all expressed in foreign currency; the domestic demand for the foreign good depends on those same prices and on domestic income, expressed in home currency. Formally:

$$c_1^* = g^*(p_1^*, p_2^*, Y^*), \text{ and}$$
$$c_2 = g(p_1, p_2, Y).$$

Here, $p_1^* = p_1 / \Pi$, $p_2 = \Pi p_2^*$, while Y^* and Y are foreign and home incomes.

The change in c_1^* can be written as:

[1] This appendix follows Kenen (1989), Chapter 14, pp.294-295 which is following Haberler (1949).

$dc_1^* = g_1^* dp_1^* + g_2^* dp_2^* + g_Y^* dY^*$, where g_1^* is the change in c_1^* induced by a small change in p_1^*, and so on.

Let, e_1^*, e_2^*, and e_Y^* denote own-price, cross-price and income elasticities of the foreign demand for the home good respectively. We can write:

$e_1^* = -g_1^*(p_1^* / c_1^*)$ being positive,

$e_2^* = g_2^*(p_2^* / c_1^*)$ with undetermined sign, and

$e_Y^* = g_Y^*(Y^* / c_1^*)$ being positive.

So, the previous equation can be rewritten as:

$\dot{c}_1^* = -e_1^* \dot{p}_1^* + e_2^* \dot{p}_2^* + e_Y^* \dot{Y}^*$

Similarly, the change in c_2 can be written as:

$\dot{c}_2 = e_1 \dot{p}_1 - e_2 \dot{p}_2 + e_Y \dot{Y}$, all variables being defined in an analogous fashion. We know that $\dot{p}_1^* = \dot{p}_1 - \dot{\Pi}$ and $\dot{p}_2 = \dot{p}_2^* + \dot{\Pi}$. Using these and the expressions for $\dot{c}_1^*$ and $\dot{c}_2$, we can express dN as follows:

$$dN = p_1 c_1^* \left[\dot{p}_1 - e_1^*(\dot{p}_1 - \dot{\Pi}) + e_2^* \dot{p}_2^* + e_Y^* \dot{Y}^*\right]$$
$$- p_2^* c_2 \left[\dot{\Pi} + \dot{p}_2^* + e_1 \dot{p}_1 - e_2(\dot{p}_2^* + \dot{\Pi}) + e_Y \dot{Y}\right]$$

Since we assume, while stating the Marshall-Lerner Condition, that the trade is balanced initially and home and foreign prices and incomes are constant, this last expression reduces to:

$$dN = p_1 c_1^* \left[e_1^* \dot{\Pi} - \dot{\Pi} + e_2 \dot{\Pi}\right] = p_1 c_1^* \left[e_1^* + e_2 - 1\right] \dot{\Pi}$$

It is clear from this last expression that, for a depreciation of the domestic currency ($\dot{\Pi} > 0$) to improve the trade balance (dN>0), the sum of the elasticities of demand must be greater than unity.

APPENDIX B

EXPLANATIONS:

M: Volume of Imports
PM: Unit Value of Imports
PD: Index of Domestic Prices
Y: Index of Domestic Real Income

X: Volume of Exports
PX: Unit Value of Exports
PXW: World Unit Value of Exports
YW: Index of World Real Income

TABLE 1

DATA FOR AUSTRALIA

SAMPLE PERIOD: 1966:III-1998:IV

SOURCE: IMF-INTERNATIONAL FINANCIAL STATISTICS

					IMPORT MODEL 19373...ZF...		19376...DZF...	19364...ZF...	19399BVRZF...					EXPORT MODEL 19372...ZF...	19374...DZF...	11074...DZF...	11066...IZF...	193..RF.ZF...
	logM	log(PM.E/PD)	logY	(PM/PD).E	M	PM/PD	PM	PD	Y	logX	log(PX/PXW)	logYW	PX/PXW	X	PX	PXW	YW	E
1966 Q3	3.059	0.170	3.591	1.185	21.310	1.327	17.672	13.314	36.253	2.514	0.353	3.823	1.423	12.358	32.369	22.750	45.758	0.893
1966 Q4	2.950	0.159	3.594	1.172	19.111	1.313	17.642	13.436	36.382	2.557	0.300	3.831	1.349	12.898	30.884	22.887	46.092	0.893
1967 Q1	3.028	0.159	3.622	1.172	20.654	1.313	17.707	13.490	37.429	2.598	0.297	3.829	1.346	13.436	30.785	22.867	46.011	0.893
1967 Q2	3.078	0.146	3.606	1.158	21.717	1.297	17.701	13.651	36.819	2.685	0.302	3.831	1.352	14.652	30.686	22.694	46.110	0.893
1967 Q3	3.111	0.132	3.643	1.141	22.453	1.278	17.684	13.840	38.216	2.590	0.266	3.844	1.305	13.327	29.697	22.753	46.714	0.893
1967 Q4	3.007	0.131	3.648	1.140	20.224	1.277	17.725	13.880	38.387	2.673	0.263	3.872	1.301	14.489	29.499	22.671	48.028	0.893
1968 Q1	3.170	0.101	3.630	1.106	23.814	1.239	17.259	13.934	37.697	2.597	0.287	3.880	1.333	13.423	29.697	22.286	48.434	0.893
1968 Q2	3.155	0.099	3.654	1.104	23.464	1.237	17.365	14.042	38.623	2.690	0.289	3.890	1.335	14.732	29.895	22.395	48.910	0.893
1968 Q3	3.223	0.106	3.709	1.112	25.107	1.245	17.548	14.096	40.819	2.636	0.297	3.921	1.346	13.960	30.093	22.361	50.435	0.893
1968 Q4	3.201	0.103	3.740	1.108	24.556	1.241	17.684	14.244	42.088	2.761	0.306	3.947	1.359	15.810	30.686	22.588	51.785	0.893
1969 Q1	3.113	0.106	3.729	1.112	22.492	1.245	17.854	14.338	41.621	2.704	0.282	3.966	1.325	14.934	30.192	22.780	52.774	0.893
1969 Q2	3.156	0.105	3.735	1.110	23.467	1.244	17.966	14.446	41.902	2.767	0.285	3.987	1.329	15.907	30.489	22.934	53.906	0.893
1969 Q3	3.277	0.100	3.763	1.105	26.487	1.238	17.978	14.527	43.060	2.855	0.291	4.003	1.338	17.383	30.884	23.078	54.785	0.893
1969 Q4	3.273	0.104	3.785	1.110	26.391	1.243	18.208	14.648	44.053	2.890	0.255	4.010	1.290	18.001	30.489	23.629	55.137	0.893
1970 Q1	3.227	0.105	3.791	1.111	25.209	1.244	18.414	14.797	44.283	2.919	0.224	4.015	1.251	18.530	30.291	24.218	55.433	0.893
1970 Q2	3.268	0.101	3.809	1.107	26.256	1.239	18.573	14.985	45.107	2.934	0.223	4.026	1.250	18.795	30.587	24.474	56.054	0.893
1970 Q3	3.359	0.098	3.820	1.103	28.758	1.236	18.632	15.080	45.601	2.941	0.192	4.029	1.211	18.943	29.895	24.676	56.184	0.893
1970 Q4	3.303	0.092	3.832	1.098	27.185	1.227	18.856	15.363	46.169	2.964	0.163	4.022	1.177	19.368	29.202	24.820	55.800	0.893
1971 Q1	3.232	0.100	3.839	1.105	25.330	1.238	19.216	15.524	46.462	2.950	0.161	4.032	1.174	19.097	29.545	25.163	56.373	0.893
1971 Q2	3.288	0.105	3.841	1.110	26.777	1.244	19.640	15.794	46.594	3.078	0.179	4.036	1.196	21.715	30.478	25.473	56.626	0.893
1971 Q3	3.316	0.108	3.868	1.114	27.546	1.258	20.245	16.090	47.844	3.059	0.153	4.044	1.165	21.317	30.308	26.014	57.078	0.886
1971 Q4	3.243	0.089	3.874	1.093	25.622	1.272	20.951	16.468	48.147	3.045	0.140	4.057	1.150	21.011	30.590	26.598	57.828	0.859
1972 Q1	3.191	0.088	3.856	1.092	24.321	1.300	21.624	16.629	47.280	3.069	0.176	4.077	1.192	21.529	33.071	27.737	58.966	0.840
1972 Q2	3.116	0.099	3.880	1.104	22.563	1.315	22.057	16.778	48.431	3.133	0.220	4.103	1.246	22.938	35.056	28.139	60.520	0.840
1972 Q3	3.156	0.078	3.874	1.081	23.475	1.287	21.894	17.007	48.132	3.082	0.244	4.116	1.277	21.797	36.269	28.412	61.332	0.840
1972 Q4	3.255	0.064	3.894	1.066	25.922	1.276	21.953	17.209	49.110	3.156	0.356	4.155	1.427	23.471	41.080	28.783	63.723	0.836
1973 Q1	3.301	0.034	3.913	1.035	27.127	1.397	24.542	17.573	50.055	3.176	0.531	4.180	1.700	23.940	52.472	30.863	65.349	0.741
1973 Q2	3.346	0.005	3.916	1.005	28.394	1.424	25.856	18.152	50.194	3.112	0.492	4.198	1.635	22.477	54.154	33.118	66.528	0.706
1973 Q3	3.430	-0.016	3.931	0.984	30.877	1.411	26.543	18.813	50.938	3.062	0.466	4.210	1.594	21.362	57.606	36.144	67.385	0.697
1973 Q4	3.559	-0.051	3.964	0.950	35.129	1.413	27.540	19.486	52.652	3.088	0.473	4.219	1.605	21.931	59.065	36.795	67.997	0.672
1974 Q1	3.573	0.057	3.971	1.059	35.625	1.575	31.429	19.958	53.032	3.003	0.545	4.212	1.724	20.150	66.362	38.497	67.493	0.672
1974 Q2	3.637	0.198	3.943	1.217	37.976	1.810	37.596	20.767	51.566	3.039	0.455	4.215	1.577	20.877	67.188	42.608	67.701	0.672
1974 Q3	3.774	0.197	3.953	1.218	43.575	1.791	39.100	21.831	52.083	3.063	0.394	4.203	1.483	21.395	65.237	43.990	66.868	0.680
1974 Q4	3.636	0.264	3.962	1.302	37.954	1.708	38.696	22.653	52.542	3.073	0.284	4.164	1.328	21.611	60.876	45.836	64.306	0.762
1975 Q1	3.419	0.295	3.962	1.343	30.525	1.810	42.457	23.462	52.579	3.121	0.267	4.108	1.306	22.679	63.343	48.507	60.805	0.742
1975 Q2	3.370	0.276	3.971	1.317	29.085	1.768	42.925	24.284	53.013	3.148	0.279	4.099	1.321	23.295	63.891	48.359	60.252	0.745
1975 Q3	3.451	0.279	3.977	1.322	31.541	1.704	41.693	24.472	53.364	3.123	0.303	4.111	1.353	22.709	62.567	46.235	60.991	0.776
1975 Q4	3.454	0.254	3.981	1.289	31.638	1.627	42.026	25.834	53.551	3.134	0.309	4.136	1.362	22.969	62.648	46.011	62.579	0.792
1976 Q1	3.491	0.261	3.994	1.298	32.826	1.631	43.385	26.602	54.270	3.166	0.329	4.164	1.390	23.721	64.127	46.131	64.331	0.796
1976 Q2	3.510	0.261	4.007	1.298	33.445	1.603	43.735	27.275	55.002	3.215	0.339	4.187	1.403	24.899	64.740	46.133	65.855	0.810
1976 Q3	3.608	0.236	4.019	1.267	36.899	1.573	43.871	27.882	55.645	3.209	0.321	4.199	1.378	24.763	65.106	47.253	66.630	0.805
1976 Q4	3.578	0.212	4.019	1.236	35.740	1.432	42.334	29.553	55.655	3.224	0.267	4.218	1.306	25.136	63.431	48.561	67.741	0.863
1977 Q1	3.616	0.321	4.025	1.379	37.197	1.506	45.524	30.227	55.974	3.324	0.252	4.231	1.287	27.764	63.850	49.608	68.756	0.915
1977 Q2	3.576	0.322	4.032	1.380	35.728	1.526	47.205	30.941	56.396	3.326	0.272	4.236	1.313	27.835	66.343	50.537	69.106	0.904
1977 Q3	3.548	0.315	4.033	1.370	34.747	1.521	47.995	31.547	56.447	3.306	0.248	4.237	1.279	27.273	65.430	51.169	69.191	0.900
1977 Q4	3.481	0.305	4.023	1.357	32.504	1.529	49.366	32.289	55.893	3.285	0.240	4.243	1.271	26.699	66.377	52.236	69.585	0.887
1978 Q1	3.559	0.310	4.034	1.363	35.132	1.552	50.748	32.706	56.493	3.292	0.209	4.248	1.233	26.894	67.397	54.680	69.971	0.879
1978 Q2	3.548	0.300	4.052	1.350	34.759	1.534	51.211	33.380	57.537	3.325	0.200	4.271	1.222	27.794	68.335	55.925	71.570	0.880
1978 Q3	3.607	0.295	4.065	1.343	36.841	1.547	52.656	34.027	58.250	3.326	0.200	4.284	1.221	27.835	71.268	58.376	72.554	0.868
1978 Q4	3.648	0.301	4.075	1.352	38.396	1.557	54.175	34.795	58.837	3.358	0.188	4.302	1.206	28.735	73.199	60.676	73.836	0.868
1979 Q1	3.601	0.324	4.116	1.383	36.641	1.565	55.380	35.388	61.323	3.420	0.190	4.303	1.209	30.570	76.110	62.943	73.943	0.884
1979 Q2	3.633	0.379	4.092	1.460	37.822	1.619	58.833	36.331	59.869	3.498	0.238	4.323	1.269	33.063	81.602	64.301	75.418	0.902
1979 Q3	3.593	0.440	4.097	1.553	36.331	1.752	65.098	37.167	60.142	3.550	0.219	4.331	1.245	34.815	84.910	68.222	76.056	0.887
1979 Q4	3.669	0.465	4.122	1.591	39.228	1.756	67.227	38.285	61.705	3.596	0.229	4.337	1.257	36.455	87.861	69.872	76.447	0.906
1980 Q1	3.684	0.532	4.113	1.703	39.807	1.875	73.362	39.121	61.113	3.655	0.241	4.345	1.272	38.657	93.148	73.228	77.126	0.908
1980 Q2	3.602	0.562	4.113	1.755	36.681	1.973	79.346	40.212	61.140	3.657	0.245	4.322	1.277	38.763	94.572	74.058	75.331	0.889
1980 Q3	3.718	0.555	4.126	1.741	41.178	2.023	82.920	40.984	61.933	3.691	0.248	4.306	1.281	40.095	98.081	76.549	74.150	0.861
1980 Q4	3.723	0.528	4.140	1.695	41.373	1.983	82.952	41.831	62.832	3.677	0.275	4.314	1.317	39.509	100.363	76.198	74.770	0.855
1981 Q1	3.723	0.511	4.138	1.667	41.396	1.948	83.374	42.805	62.665	3.693	0.300	4.317	1.350	40.172	100.601	74.530	74.986	0.856
1981 Q2	3.744	0.490	4.160	1.633	42.268	1.869	81.820	43.779	64.042	3.694	0.324	4.320	1.383	40.220	99.087	71.669	75.207	0.874
1981 Q3	3.830	0.460	4.172	1.584	46.072	1.810	80.869	44.668	64.821	3.703	0.349	4.323	1.417	40.563	98.614	69.574	75.394	0.875
1981 Q4	3.807	0.422	4.180	1.525	45.016	1.741	80.996	46.531	65.340	3.690	0.297	4.321	1.346	40.048	97.761	72.609	75.259	0.876
1982 Q1	3.863	0.433	4.178	1.542	47.621	1.675	79.295	47.335	65.257	3.689	0.269	4.311	1.308	40.012	93.721	71.649	74.505	0.921

1982 Q2	3.865	0.436	4.182	1.546	47.724	1.621	78.567	48.478	65.492	3.711	0.285	4.303	1.330	40.877	93.518	70.299	73.933	0.954
1982 Q3	3.828	0.429	4.170	1.536	45.974	1.509	75.732	50.172	64.742	3.729	0.277	4.286	1.319	41.617	90.118	68.315	72.640	1.017
1982 Q4	3.740	0.425	4.152	1.529	42.079	1.454	75.058	51.612	63.561	3.762	0.271	4.275	1.311	43.032	88.509	67.511	71.882	1.052
1983 Q1	3.643	0.415	4.144	1.514	38.224	1.426	75.253	52.755	63.072	3.768	0.255	4.286	1.290	43.292	88.713	68.748	72.678	1.061
1983 Q2	3.671	0.442	4.147	1.556	39.274	1.360	73.318	53.898	63.219	3.819	0.244	4.305	1.277	45.548	85.976	67.350	74.105	1.144
1983 Q3	3.737	0.425	4.177	1.529	41.953	1.347	73.837	54.829	65.187	3.833	0.275	4.324	1.317	46.205	86.721	65.844	75.495	1.136
1983 Q4	3.727	0.385	4.204	1.470	41.551	1.337	75.031	56.100	66.931	3.809	0.280	4.347	1.323	45.104	87.765	66.353	77.277	1.099
1984 Q1	3.797	0.382	4.223	1.465	44.552	1.363	76.181	55.888	68.263	3.802	0.283	4.367	1.327	44.796	88.878	66.973	78.803	1.075
1984 Q2	3.856	0.393	4.228	1.482	47.254	1.339	74.977	56.015	68.584	3.805	0.260	4.373	1.297	44.932	86.607	66.797	79.264	1.107
1984 Q3	4.003	0.426	4.241	1.530	54.746	1.282	72.751	56.735	69.477	3.859	0.258	4.385	1.295	47.436	83.042	64.141	80.225	1.193
1984 Q4	3.934	0.410	4.242	1.506	51.103	1.274	73.287	57.538	69.525	3.828	0.281	4.391	1.325	45.962	83.140	62.761	80.683	1.183
1985 Q1	3.871	0.441	4.263	1.554	48.011	1.182	67.769	58.344	70.990	3.882	0.237	4.400	1.267	48.619	77.317	61.008	81.424	1.338
1985 Q2	3.930	0.536	4.280	1.709	50.919	1.139	68.034	59.741	72.252	3.955	0.172	4.408	1.188	52.213	75.205	63.322	82.129	1.501
1985 Q3	4.034	0.520	4.294	1.682	56.467	1.173	71.628	61.053	73.262	3.963	0.159	4.411	1.172	52.622	77.221	65.888	82.344	1.434
1985 Q4	3.984	0.533	4.297	1.705	53.730	1.171	72.939	62.281	73.467	4.032	0.087	4.414	1.091	56.375	75.530	69.210	82.573	1.455
1986 Q1	3.917	0.506	4.300	1.659	50.225	1.163	74.138	63.721	73.735	3.946	0.052	4.418	1.054	51.704	76.002	72.140	82.928	1.426
1986 Q2	3.944	0.454	4.298	1.574	51.848	1.121	72.838	64.779	73.436	3.996	0.043	4.417	1.044	54.362	76.223	72.998	82.884	1.404
1986 Q3	3.951	0.548	4.304	1.730	51.981	1.075	71.451	66.473	73.978	4.021	-0.063	4.420	0.939	55.753	70.514	75.107	83.069	1.609
1986 Q4	3.933	0.529	4.320	1.698	51.074	1.099	75.142	68.378	75.219	4.121	-0.038	4.427	0.965	61.608	73.382	76.030	83.702	1.545
1987 Q1	3.850	0.515	4.330	1.673	47.013	1.122	78.257	69.733	75.958	4.040	-0.058	4.432	0.943	56.819	75.609	80.154	84.115	1.491
1987 Q2	3.933	0.482	4.344	1.619	51.057	1.156	81.868	70.791	77.031	4.147	-0.023	4.446	0.977	63.216	80.166	82.071	85.277	1.400
1987 Q3	3.989	0.465	4.359	1.592	53.977	1.137	81.808	71.977	78.184	4.117	0.004	4.458	1.004	61.371	82.143	81.819	86.290	1.400
1987 Q4	4.018	0.487	4.380	1.628	55.578	1.145	83.852	73.205	79.798	4.218	-0.027	4.460	0.974	67.885	84.296	86.571	88.232	1.421
1988 Q1	4.009	0.475	4.383	1.608	55.101	1.157	86.225	74.517	80.096	4.166	0.035	4.493	1.035	64.450	90.993	87.874	89.429	1.390
1988 Q2	4.031	0.422	4.386	1.525	58.341	1.166	89.877	75.787	80.286	4.085	0.136	4.503	1.146	59.424	101.599	88.651	90.300	1.286
1988 Q3	4.161	0.358	4.398	1.430	64.154	1.143	88.271	77.227	81.095	4.097	0.188	4.513	1.207	60.170	103.687	85.919	91.154	1.251
1988 Q4	4.255	0.320	4.414	1.377	70.424	1.154	91.005	78.836	82.570	4.185	0.177	4.528	1.194	65.711	108.809	89.478	92.430	1.193
1989 Q1	4.248	0.297	4.421	1.348	70.000	1.139	90.643	79.598	83.166	4.100	0.199	4.540	1.220	60.365	108.531	88.985	93.698	1.182
1989 Q2	4.298	0.327	4.443	1.387	73.534	1.078	87.883	81.545	84.992	4.190	0.205	4.548	1.228	66.001	106.804	86.994	94.397	1.287
1989 Q3	4.385	0.326	4.446	1.385	78.685	1.057	88.204	83.408	85.282	4.180	0.202	4.545	1.224	65.379	106.701	87.171	94.130	1.309
1989 Q4	4.309	0.295	4.448	1.343	74.371	1.049	89.138	84.975	85.431	4.208	0.177	4.550	1.194	67.238	106.970	89.591	94.652	1.280
1990 Q1	4.281	0.295	4.458	1.343	72.335	1.028	88.874	86.424	86.355	4.193	0.125	4.556	1.133	66.196	105.212	92.863	95.174	1.306
1990 Q2	4.187	0.270	4.462	1.310	65.795	1.006	86.318	87.794	86.689	4.220	0.143	4.561	1.154	68.025	107.299	92.973	95.726	1.302
1990 Q3	4.309	0.257	4.453	1.293	74.377	1.045	92.483	88.480	85.891	4.256	0.108	4.566	1.114	70.553	108.475	97.373	96.163	1.237
1990 Q4	4.257	0.297	4.457	1.346	70.625	1.053	95.575	90.792	86.234	4.308	0.042	4.564	1.043	74.289	106.403	101.980	95.974	1.279
1991 Q1	4.185	0.291	4.451	1.338	65.691	1.041	94.362	90.621	85.708	4.294	0.017	4.558	1.017	73.294	102.044	100.368	95.354	1.285
1991 Q2	4.182	0.259	4.444	1.295	65.496	0.999	90.739	90.792	85.126	4.393	0.033	4.554	1.034	80.871	95.656	92.541	94.969	1.296
1991 Q3	4.269	0.244	4.445	1.276	72.885	0.998	91.116	91.306	85.195	4.412	0.046	4.552	1.047	82.464	96.549	92.190	94.853	1.279
1991 Q4	4.310	0.241	4.448	1.273	74.406	0.998	91.976	92.163	85.458	4.441	-0.011	4.555	0.989	84.879	95.303	96.382	95.148	1.275
1992 Q1	4.238	0.263	4.470	1.301	69.151	0.980	90.304	92.163	87.321	4.345	-0.021	4.556	0.980	77.083	94.275	96.238	95.178	1.328
1992 Q2	4.268	0.262	4.473	1.300	71.388	0.986	90.590	91.906	87.576	4.434	-0.018	4.550	0.982	84.305	95.254	96.989	94.674	1.319
1992 Q3	4.390	0.309	4.483	1.362	80.653	0.998	91.600	91.991	88.466	4.444	-0.082	4.542	0.921	85.128	94.188	102.282	93.873	1.368
1992 Q4	4.390	0.334	4.494	1.397	80.653	0.978	90.156	92.420	89.459	4.511	-0.053	4.534	0.948	90.971	91.163	96.128	93.122	1.432
1993 Q1	4.304	0.336	4.508	1.399	74.027	0.961	89.672	93.276	90.740	4.408	0.016	4.536	1.016	82.085	89.935	88.545	93.359	1.455
1993 Q2	4.330	0.341	4.514	1.407	75.977	0.978	91.598	93.619	91.298	4.489	-0.016	4.531	0.985	89.017	88.347	89.735	92.880	1.438
1993 Q3	4.439	0.366	4.515	1.441	84.720	0.964	90.707	94.047	91.373	4.513	-0.011	4.529	0.989	91.160	86.922	87.853	92.658	1.494
1993 Q4	4.425	0.367	4.531	1.444	83.521	0.966	91.028	94.218	92.827	4.567	-0.010	4.532	0.990	96.269	86.383	87.243	92.936	1.495
1994 Q1	4.384	0.325	4.553	1.384	80.168	0.979	92.586	94.561	94.941	4.519	0.008	4.546	1.008	91.699	88.501	87.779	94.255	1.413
1994 Q2	4.434	0.313	4.561	1.367	84.227	0.991	94.348	95.246	95.664	4.587	0.001	4.563	1.001	98.199	89.942	89.872	95.855	1.380
1994 Q3	4.601	0.310	4.576	1.363	99.544	1.007	96.532	95.846	97.156	4.570	-0.003	4.573	0.997	96.571	92.544	92.783	96.836	1.353
1994 Q4	4.625	0.292	4.580	1.339	101.982	1.011	97.653	96.617	97.558	4.616	0.026	4.595	1.027	101.088	96.723	94.218	98.939	1.324
1995 Q1	4.576	0.288	4.583	1.334	97.140	0.999	98.130	98.244	97.819	4.526	0.013	4.603	1.013	92.409	99.262	97.993	99.789	1.336
1995 Q2	4.571	0.327	4.600	1.387	96.601	1.010	100.497	99.529	99.462	4.569	-0.009	4.606	0.991	96.488	100.375	101.269	100.035	1.374
1995 Q3	4.648	0.305	4.616	1.356	104.357	1.005	101.185	100.728	101.105	4.636	0.009	4.603	1.009	103.148	100.947	100.064	99.747	1.350
1995 Q4	4.624	0.277	4.621	1.319	101.902	0.987	100.160	101.499	101.614	4.682	-0.013	4.609	0.987	107.955	99.395	100.674	100.429	1.336
1996 Q1	4.613	0.260	4.639	1.298	100.737	0.981	99.999	101.927	103.453	4.649	0.005	4.612	1.005	104.527	100.905	100.354	100.867	1.323
1996 Q2	4.651	0.216	4.639	1.241	104.707	0.983	100.820	102.612	103.451	4.721	0.032	4.621	1.032	112.229	102.302	99.109	101.575	1.263
1996 Q3	4.729	0.203	4.654	1.226	113.220	0.966	99.389	102.869	105.013	4.710	0.023	4.634	1.024	111.045	101.428	99.075	102.890	1.268
1996 Q4	4.749	0.193	4.659	1.213	115.412	0.965	99.431	103.041	105.576	4.789	0.014	4.642	1.014	117.776	100.223	98.863	103.719	1.257
1997 Q1	4.681	0.191	4.668	1.210	107.931	0.942	97.210	103.212	105.445	4.736	0.030	4.656	1.030	113.946	99.043	96.150	105.227	1.285
1997 Q2	4.780	0.189	4.683	1.208	119.152	0.929	95.625	102.955	106.139	4.915	0.049	4.667	1.050	136.352	99.369	94.605	106.397	1.300
1997 Q3	4.868	0.219	4.694	1.245	130.040	0.916	93.936	102.527	109.244	4.854	0.043	4.677	1.044	128.189	97.603	93.486	107.497	1.359
1997 Q4	4.855	0.258	4.706	1.294	128.400	0.895	92.032	102.784	110.655	4.859	0.015	4.680	1.015	128.846	94.973	93.597	107.745	1.445
1998 Q1	4.849	0.266	4.720	1.305	127.579	0.869	89.532	103.041	112.182	4.880	0.001	4.678	1.001	131.652	91.546	91.491	107.589	1.502
1998 Q2	4.892	0.276	4.728	1.318	133.178	0.828	85.818	103.640	113.099	4.880	-0.031	4.670	0.969	131.634	87.721	90.507	106.656	1.591
1998 Q3	4.954	0.310	4.737	1.363	141.720	0.816	84.808	103.897	114.114	4.893	-0.063	4.672	0.939	133.321	84.497	89.994	106.948	1.670
1998 Q4	4.949	0.295	4.752	1.343	141.055	0.837	87.427	104.411	115.774	4.950	-0.095	4.669	0.909	141.148	83.567	91.911	106.825	1.604

TABLE 2

DATA FOR GERMANY

SAMPLE PERIOD: 1960:I-1995:IV

SOURCE: IMF-INTERNATIONAL FINANCIAL STATISTICS

	IMPORT MODEL								EXPORT MODEL								
				13473..ZF...		13475..ZF...	13464..ZF...	13499BVRZF...					13472..ZF...	13474..ZF...	11074..DZF...	11066..IZF...	134..RF.ZF...
	logM	log(PM/PD)	logY	M	PM/PD	PM	PD	Y	logX	log(PX/PXW.E)	logYW	PX/PXW	X	PX	PXW	YW	E
1960 Q1	2.334	0.646	3.465	10.321	1.908	59.350	31.105	31.970	2.619	0.833	3.436	2.301	13.724	49.123	21.347	31.070	4.200
1960 Q2	2.389	0.642	3.482	10.903	1.900	59.468	31.304	32.539	2.617	0.847	3.434	2.333	13.696	49.619	21.272	31.012	4.200
1960 Q3	2.371	0.636	3.516	10.705	1.890	59.113	31.282	33.664	2.619	0.850	3.437	2.340	13.724	49.619	21.200	31.078	4.200
1960 Q4	2.488	0.632	3.527	12.035	1.881	59.053	31.392	34.008	2.770	0.856	3.433	2.354	15.966	49.867	21.182	30.959	4.200
1961 Q1	2.377	0.613	3.537	10.771	1.845	58.461	31.679	34.352	2.672	0.858	3.437	2.359	14.467	50.015	21.200	31.091	4.200
1961 Q2	2.466	0.589	3.531	11.771	1.802	57.513	31.922	34.167	2.729	0.837	3.462	2.309	15.324	49.421	21.401	31.884	4.133
1961 Q3	2.463	0.563	3.552	11.738	1.757	56.388	32.099	34.868	2.705	0.847	3.487	2.332	14.952	49.718	21.321	32.690	4.000
1961 Q4	2.561	0.567	3.556	12.947	1.762	56.803	32.231	35.027	2.760	0.848	3.511	2.335	15.795	49.817	21.332	33.487	4.000
1962 Q1	2.665	0.496	3.571	14.372	1.641	53.737	32.739	35.543	2.658	0.845	3.528	2.327	14.262	49.661	21.339	34.048	4.000
1962 Q2	2.682	0.493	3.581	14.609	1.638	53.951	32.938	35.914	2.692	0.858	3.535	2.357	14.766	50.111	21.256	34.298	4.000
1962 Q3	2.679	0.478	3.605	14.565	1.614	53.040	32.871	36.774	2.676	0.860	3.550	2.362	14.529	50.111	21.213	34.813	4.000
1962 Q4	2.760	0.482	3.603	15.798	1.620	53.576	33.070	36.695	2.756	0.859	3.552	2.360	15.744	50.211	21.276	34.899	4.000
1963 Q1	2.677	0.464	3.587	14.535	1.590	53.737	33.799	35.411	2.664	0.852	3.560	2.344	14.351	50.381	21.489	35.148	4.000
1963 Q2	2.774	0.455	3.611	16.018	1.576	53.415	33.887	36.999	2.787	0.846	3.595	2.331	16.234	50.061	21.479	36.419	4.000
1963 Q3	2.794	0.444	3.645	16.345	1.559	52.558	33.710	38.282	2.796	0.852	3.613	2.344	16.382	50.361	21.488	37.067	4.000
1963 Q4	2.790	0.437	3.650	16.285	1.548	52.879	34.152	38.468	2.907	0.829	3.631	2.290	18.294	49.711	21.708	37.753	4.000
1964 Q1	2.764	0.433	3.663	15.870	1.542	53.308	34.571	38.997	2.860	0.828	3.652	2.288	17.464	49.911	21.813	38.534	4.000
1964 Q2	2.842	0.433	3.676	17.146	1.543	53.362	34.593	39.473	2.900	0.829	3.667	2.291	18.176	49.911	21.784	39.147	4.000
1964 Q3	2.892	0.420	3.686	18.021	1.522	52.719	34.637	39.884	2.846	0.830	3.681	2.293	17.227	50.261	21.917	39.670	4.000
1964 Q4	2.995	0.425	3.699	19.993	1.529	53.415	34.924	40.426	2.982	0.823	3.697	2.277	19.717	50.161	22.026	40.327	4.000
1965 Q1	2.957	0.433	3.716	19.237	1.541	54.380	35.278	41.088	2.953	0.831	3.722	2.296	19.169	50.761	22.109	41.345	4.000
1965 Q2	3.022	0.424	3.731	20.542	1.529	54.540	35.675	41.736	2.956	0.830	3.734	2.293	19.228	50.661	22.092	41.863	4.000
1965 Q3	3.036	0.418	3.738	20.824	1.519	54.594	35.940	42.014	2.942	0.828	3.750	2.288	18.947	50.961	22.271	42.539	4.000
1965 Q4	3.106	0.410	3.744	22.337	1.506	54.701	36.315	42.265	3.067	0.830	3.770	2.294	21.482	51.161	22.305	43.367	4.000
1966 Q1	3.038	0.417	3.762	20.854	1.517	55.773	36.757	43.033	3.028	0.825	3.793	2.282	20.651	51.411	22.532	44.380	4.000
1966 Q2	3.044	0.407	3.765	20.987	1.503	55.826	37.154	43.165	3.064	0.818	3.810	2.265	21.422	51.311	22.651	45.133	4.000
1966 Q3	3.024	0.394	3.766	20.572	1.483	55.022	37.110	43.218	3.070	0.820	3.823	2.271	21.541	51.661	22.750	45.758	4.000
1966 Q4	3.083	0.386	3.751	21.818	1.471	54.969	37.375	42.543	3.183	0.810	3.831	2.249	24.120	51.461	22.887	46.092	4.000
1967 Q1	2.959	0.375	3.746	19.282	1.455	54.755	37.640	42.332	3.116	0.813	3.829	2.255	22.549	51.561	22.867	46.011	4.000
1967 Q2	3.025	0.367	3.742	20.587	1.443	54.433	37.728	42.199	3.192	0.798	3.831	2.221	24.328	50.411	22.694	46.110	4.000
1967 Q3	2.983	0.377	3.766	19.756	1.457	54.915	37.684	43.218	3.125	0.805	3.844	2.238	22.757	50.911	22.753	46.714	4.000
1967 Q4	3.120	0.376	3.779	22.648	1.457	54.969	37.728	43.774	3.256	0.813	3.872	2.254	25.944	51.111	22.671	48.028	4.000
1968 Q1	3.115	0.347	3.759	22.530	1.414	54.112	38.258	42.901	3.246	0.826	3.880	2.284	25.677	50.911	22.286	48.434	4.000
1968 Q2	3.141	0.343	3.806	23.123	1.409	53.951	38.280	44.965	3.239	0.805	3.890	2.238	25.514	50.111	22.395	48.910	4.000
1968 Q3	3.217	0.323	3.824	24.947	1.382	52.826	38.236	45.799	3.320	0.803	3.921	2.232	27.664	49.911	22.361	50.435	4.000
1968 Q4	3.288	0.327	3.857	26.786	1.386	53.308	38.457	47.347	3.466	0.799	3.947	2.223	32.007	50.211	22.588	51.785	4.000
1969 Q1	3.291	0.339	3.835	26.875	1.404	54.540	38.854	48.301	3.342	0.800	3.966	2.226	28.272	50.711	22.780	52.774	4.000
1969 Q2	3.348	0.352	3.880	28.433	1.421	55.505	39.053	48.419	3.443	0.799	3.987	2.224	31.266	51.011	22.934	53.906	4.000
1969 Q3	3.352	0.348	3.896	28.551	1.417	55.237	38.986	49.213	3.437	0.801	4.003	2.228	31.103	51.411	23.078	54.785	4.000
1969 Q4	3.435	0.316	3.926	31.028	1.372	53.790	39.207	50.682	3.517	0.777	4.010	2.176	33.668	51.411	23.629	55.137	3.773
1970 Q1	3.478	0.245	3.896	32.409	1.277	51.084	39.980	49.226	3.422	0.776	4.015	2.172	30.621	52.595	24.218	55.433	3.660
1970 Q2	3.541	0.251	3.936	34.508	1.286	51.830	40.311	51.237	3.495	0.772	4.026	2.165	32.962	52.987	24.474	56.054	3.660
1970 Q3	3.515	0.228	3.938	33.622	1.256	50.758	40.399	51.330	3.467	0.782	4.029	2.185	32.044	53.927	24.676	56.184	3.660
1970 Q4	3.605	0.232	3.959	36.793	1.262	51.447	40.775	52.428	3.579	0.779	4.022	2.179	35.855	54.084	24.820	55.800	3.660
1971 Q1	3.590	0.225	3.944	36.233	1.252	52.289	41.768	51.634	3.527	0.775	4.032	2.171	34.018	54.633	25.163	56.373	3.660
1971 Q2	3.615	0.219	3.962	37.166	1.245	52.749	42.364	52.561	3.534	0.774	4.036	2.169	34.248	55.260	25.473	56.626	3.574
1971 Q3	3.590	0.192	3.967	36.233	1.212	51.753	42.695	52.812	3.520	0.769	4.044	2.157	33.789	56.122	26.014	57.078	3.420
1971 Q4	3.661	0.171	3.975	38.891	1.187	51.141	43.093	53.249	3.564	0.745	4.057	2.107	35.304	56.044	26.598	57.828	3.376
1972 Q1	3.649	0.155	3.985	38.425	1.168	51.371	43.978	53.765	3.557	0.708	4.077	2.029	35.074	56.279	27.737	58.966	3.196
1972 Q2	3.703	0.154	3.994	40.570	1.166	51.830	44.439	54.294	3.590	0.701	4.103	2.017	36.222	56.749	28.139	60.520	3.176
1972 Q3	3.644	0.130	4.008	38.238	1.138	51.294	45.057	55.062	3.534	0.706	4.116	2.025	34.248	57.533	28.412	61.332	3.179
1972 Q4	3.745	0.143	4.029	42.295	1.154	52.825	45.786	56.200	3.709	0.697	4.155	2.007	40.813	57.768	28.783	63.723	3.203
1973 Q1	3.745	0.152	4.048	42.295	1.164	54.509	46.823	57.166	3.682	0.647	4.180	1.910	39.711	58.944	30.863	65.349	3.011
1973 Q2	3.758	0.141	4.048	42.855	1.152	54.969	47.729	57.311	3.719	0.583	4.198	1.792	41.226	59.336	33.118	66.528	2.736
1973 Q3	3.684	0.117	4.054	39.824	1.124	54.127	48.148	57.655	3.708	0.502	4.210	1.652	40.767	59.728	36.144	67.385	2.394
1973 Q4	3.762	0.180	4.056	43.042	1.198	58.797	49.097	57.748	3.820	0.507	4.219	1.659	45.587	61.060	36.795	67.997	2.549
1974 Q1	3.657	0.312	4.062	38.751	1.366	68.673	50.267	58.118	3.858	0.520	4.212	1.682	47.378	64.744	38.497	67.493	2.715
1974 Q2	3.720	0.320	4.059	41.270	1.377	70.357	51.084	57.893	3.844	0.477	4.215	1.612	46.735	68.663	42.608	67.701	2.503
1974 Q3	3.695	0.349	4.055	40.244	1.418	73.113	51.548	57.695	3.805	0.489	4.203	1.630	44.945	71.720	43.990	66.868	2.610
1974 Q4	3.731	0.334	4.041	41.736	1.396	72.960	52.254	56.901	3.855	0.461	4.164	1.585	47.240	72.661	45.836	64.306	2.523
1975 Q1	3.625	0.303	4.035	37.539	1.354	72.118	53.248	56.557	3.676	0.434	4.108	1.543	39.482	74.856	48.507	60.805	2.337
1975 Q2	3.732	0.277	4.033	41.783	1.319	71.582	54.263	56.425	3.726	0.443	4.099	1.558	41.502	75.326	48.359	60.252	2.355
1975 Q3	3.683	0.280	4.041	39.777	1.323	72.347	54.683	56.901	3.674	0.490	4.111	1.633	39.390	75.483	46.235	60.991	2.553

1975 Q4	3.783	0.301	4.057	43.928	1.351	74.491	55.146	57.801	3.797	0.498	4.136	1.646	44.577	75.718	46.011	62.579	2.597
1976 Q1	3.798	0.290	4.075	44.606	1.337	74.907	56.029	58.873	3.841	0.456	4.164	1.578	46.585	72.808	46.131	64.331	2.574
1976 Q2	3.849	0.291	4.089	46.931	1.338	75.800	56.669	59.706	3.872	0.465	4.187	1.592	48.029	73.426	46.133	65.855	2.558
1976 Q3	3.843	0.294	4.082	46.654	1.341	76.197	56.802	59.256	3.868	0.456	4.199	1.578	47.862	74.575	47.253	66.630	2.531
1976 Q4	3.917	0.288	4.112	50.251	1.334	76.296	57.177	61.043	3.946	0.436	4.216	1.547	51.749	75.105	48.561	67.741	2.409
1977 Q1	3.845	0.312	4.112	46.765	1.367	79.471	58.149	61.056	3.892	0.429	4.231	1.535	49.028	76.165	49.608	68.756	2.395
1977 Q2	3.856	0.304	4.116	47.263	1.356	79.669	58.767	61.294	3.913	0.410	4.236	1.507	50.028	76.165	50.537	69.106	2.362
1977 Q3	3.857	0.280	4.110	47.318	1.323	77.983	58.943	60.950	3.876	0.393	4.237	1.482	48.251	75.812	51.169	69.191	2.308
1977 Q4	3.939	0.264	4.140	51.358	1.302	77.090	59.186	62.790	4.001	0.368	4.243	1.445	54.636	75.458	52.236	69.585	2.224
1978 Q1	3.900	0.239	4.139	49.421	1.270	76.098	59.915	62.763	3.909	0.329	4.248	1.390	49.861	75.989	54.680	69.971	2.076
1978 Q2	3.948	0.237	4.139	51.856	1.267	76.594	60.444	62.763	3.970	0.309	4.271	1.362	52.971	76.165	55.925	71.570	2.077
1978 Q3	3.903	0.231	4.150	49.532	1.260	76.098	60.400	63.425	3.908	0.273	4.284	1.314	49.806	76.695	58.376	72.554	2.007
1978 Q4	4.008	0.225	4.169	55.011	1.252	75.899	60.599	64.682	4.022	0.243	4.302	1.276	55.802	77.402	60.676	73.836	1.875
1979 Q1	3.987	0.251	4.167	53.904	1.288	79.272	61.659	64.497	3.969	0.223	4.303	1.249	52.915	78.639	62.943	73.943	1.855
1979 Q2	4.006	0.295	4.199	54.900	1.343	83.936	62.498	66.640	4.014	0.212	4.323	1.237	55.358	79.523	64.301	75.418	1.895
1979 Q3	3.989	0.316	4.197	54.015	1.372	86.813	63.292	66.468	3.963	0.175	4.331	1.192	52.637	81.290	68.222	76.056	1.816
1979 Q4	4.071	0.332	4.202	58.608	1.394	88.996	63.844	66.852	4.051	0.173	4.337	1.189	57.468	83.057	69.872	76.447	1.766
1980 Q1	4.049	0.394	4.212	57.335	1.483	96.536	65.080	67.514	4.054	0.165	4.345	1.179	57.635	86.327	73.228	77.126	1.773
1980 Q2	4.023	0.403	4.203	55.896	1.496	98.917	66.140	66.878	4.024	0.170	4.322	1.185	55.913	87.740	74.058	75.331	1.811
1980 Q3	3.971	0.396	4.196	53.019	1.485	98.818	66.537	66.402	3.954	0.151	4.306	1.164	52.138	89.066	76.549	74.150	1.776
1980 Q4	4.010	0.425	4.193	55.122	1.529	102.687	67.156	66.230	4.034	0.171	4.314	1.186	56.469	90.391	76.198	74.770	1.911
1981 Q1	3.980	0.469	4.204	53.517	1.599	109.930	68.767	66.945	4.018	0.209	4.317	1.233	55.580	91.893	74.530	74.986	2.087
1981 Q2	3.948	0.473	4.203	51.856	1.604	112.311	70.003	66.918	4.068	0.262	4.320	1.299	58.412	93.130	71.669	75.207	2.276
1981 Q3	3.929	0.492	4.204	50.860	1.635	116.081	70.997	66.931	4.065	0.311	4.323	1.365	58.245	94.986	69.574	75.394	2.433
1981 Q4	3.992	0.456	4.199	54.181	1.577	113.402	71.902	66.587	4.167	0.272	4.321	1.313	64.520	95.339	72.609	75.259	2.245
1982 Q1	3.988	0.456	4.201	53.959	1.578	114.990	72.851	66.733	4.134	0.299	4.311	1.349	62.410	96.665	71.649	74.505	2.346
1982 Q2	3.994	0.423	4.197	54.291	1.527	112.609	73.734	66.508	4.127	0.330	4.303	1.391	62.021	97.813	70.299	73.933	2.378
1982 Q3	3.929	0.419	4.184	50.860	1.521	113.501	74.617	65.648	4.051	0.369	4.286	1.446	57.468	98.785	68.315	72.640	2.481
1982 Q4	3.989	0.409	4.185	54.015	1.508	113.402	75.302	65.701	4.137	0.382	4.275	1.465	62.632	98.873	67.511	71.882	2.501
1983 Q1	3.978	0.399	4.199	53.406	1.490	112.906	75.787	66.627	4.090	0.364	4.286	1.439	59.745	98.962	68.748	72.678	2.408
1983 Q2	4.023	0.371	4.208	55.896	1.449	110.426	76.185	67.196	4.094	0.387	4.305	1.472	59.967	99.139	67.350	74.105	2.485
1983 Q3	3.985	0.391	4.208	53.793	1.479	113.799	76.935	67.090	4.069	0.407	4.324	1.503	58.523	98.962	65.844	75.495	2.643
1983 Q4	4.071	0.404	4.224	58.608	1.498	115.783	77.311	68.281	4.182	0.412	4.347	1.510	65.519	100.199	66.353	77.277	2.678
1984 Q1	4.077	0.419	4.235	58.998	1.521	118.561	77.973	69.075	4.197	0.413	4.367	1.512	66.463	101.259	66.973	78.803	2.703
1984 Q2	4.061	0.409	4.219	58.055	1.506	117.966	78.348	67.990	4.155	0.414	4.373	1.513	63.742	101.082	66.797	79.284	2.710
1984 Q3	4.032	0.433	4.244	58.394	1.542	120.843	78.348	69.697	4.154	0.481	4.385	1.617	63.687	103.733	64.141	80.225	2.919
1984 Q4	4.089	0.436	4.249	59.860	1.546	122.034	78.922	70.041	4.279	0.513	4.391	1.670	72.182	104.793	62.761	80.683	3.053
1985 Q1	4.105	0.469	4.244	60.656	1.598	127.491	79.783	69.684	4.252	0.559	4.400	1.750	70.239	106.737	61.008	81.424	3.256
1985 Q2	4.085	0.444	4.255	59.438	1.559	125.110	80.269	70.451	4.247	0.529	4.408	1.697	69.906	107.444	63.322	82.129	3.087
1985 Q3	4.096	0.414	4.268	60.102	1.513	121.141	80.070	71.404	4.222	0.489	4.411	1.631	68.184	107.444	65.888	82.344	2.849
1985 Q4	4.137	0.385	4.271	62.593	1.470	118.065	80.313	71.576	4.297	0.422	4.414	1.526	73.515	105.589	69.210	82.573	2.584
1986 Q1	4.130	0.328	4.265	62.150	1.388	111.517	80.335	71.166	4.242	0.375	4.418	1.455	69.573	104.970	72.140	82.928	2.346
1986 Q2	4.198	0.254	4.279	66.578	1.289	103.282	80.114	72.172	4.293	0.348	4.417	1.416	73.182	103.380	72.998	82.884	2.246
1986 Q3	4.131	0.224	4.289	62.261	1.251	99.711	79.717	72.860	4.228	0.314	4.420	1.369	68.573	102.850	75.107	83.069	2.086
1986 Q4	4.201	0.219	4.297	66.744	1.245	98.917	79.474	73.495	4.308	0.293	4.427	1.340	74.292	101.878	76.030	83.702	2.008
1987 Q1	4.179	0.203	4.270	65.305	1.225	97.925	79.916	71.523	4.255	0.232	4.432	1.261	70.461	101.082	80.154	84.115	1.840
1987 Q2	4.217	0.184	4.296	57.850	1.202	96.437	80.225	73.429	4.286	0.198	4.446	1.219	72.682	100.022	82.071	85.277	1.805
1987 Q3	4.189	0.190	4.303	65.969	1.210	97.032	80.225	73.892	4.261	0.208	4.458	1.231	70.850	100.729	81.819	86.290	1.839
1987 Q4	4.282	0.187	4.315	72.389	1.205	96.734	80.247	74.831	4.379	0.148	4.480	1.159	79.789	100.376	86.571	88.232	1.706
1988 Q1	4.233	0.172	4.314	68.939	1.188	95.775	80.622	74.752	4.285	0.117	4.493	1.124	72.571	98.785	87.874	89.429	1.676
1988 Q2	4.261	0.183	4.323	70.857	1.200	97.296	81.064	75.427	4.369	0.122	4.503	1.130	78.956	100.140	88.651	90.300	1.707
1988 Q3	4.247	0.195	4.338	69.898	1.216	98.685	81.174	76.578	4.331	0.175	4.513	1.191	76.013	102.349	85.919	91.154	1.866
1988 Q4	4.371	0.200	4.350	79.140	1.221	99.479	81.461	77.478	4.452	0.151	4.526	1.163	85.804	104.087	89.476	92.430	1.776
1989 Q1	4.306	0.228	4.360	74.326	1.256	103.977	82.755	78.259	4.421	0.165	4.540	1.180	83.213	104.970	88.985	93.698	1.849
1989 Q2	4.367	0.247	4.360	78.771	1.280	106.920	83.525	78.285	4.472	0.195	4.548	1.215	87.563	105.677	86.994	94.397	1.934
1989 Q3	4.298	0.229	4.368	73.532	1.258	105.101	83.554	78.920	4.392	0.204	4.545	1.227	80.826	106.944	87.171	94.130	1.924
1989 Q4	4.421	0.218	4.381	83.217	1.243	104.539	84.087	79.913	4.468	0.172	4.550	1.187	87.211	106.354	89.591	94.652	1.813
1990 Q1	4.412	0.193	4.406	82.406	1.213	103.084	85.006	81.924	4.504	0.121	4.556	1.128	90.413	104.764	92.863	95.174	1.691
1990 Q2	4.440	0.165	4.415	84.785	1.180	100.802	85.450	82.678	4.438	0.122	4.561	1.130	84.638	105.059	92.973	95.726	1.678
1990 Q3	4.428	0.172	4.432	83.771	1.188	101.959	85.835	84.081	4.394	0.077	4.566	1.080	80.974	105.117	97.373	96.163	1.593
1990 Q4	4.562	0.183	4.449	95.817	1.201	104.010	86.635	85.523	4.474	0.022	4.564	1.022	87.711	104.234	101.980	95.974	1.501
1991 Q1	4.579	0.185	4.547	97.385	1.204	102.753	85.376	94.389	4.489	0.028	4.558	1.028	87.303	103.203	100.368	95.354	1.531
1991 Q2	4.592	0.197	4.552	98.732	1.217	104.870	86.160	94.800	4.449	0.118	4.554	1.125	85.508	104.116	92.541	94.969	1.735
1991 Q3	4.548	0.190	4.546	94.489	1.209	105.895	87.612	94.297	4.445	0.129	4.552	1.138	85.175	104.911	92.190	94.853	1.744
1991 Q4	4.607	0.147	4.555	100.134	1.158	103.348	89.237	95.104	4.508	0.080	4.555	1.084	90.727	104.440	96.382	95.148	1.629
1992 Q1	4.632	0.122	4.573	102.753	1.129	102.092	90.398	96.851	4.519	0.067	4.556	1.070	91.745	102.938	96.238	95.178	1.619
1992 Q2	4.586	0.115	4.568	98.086	1.122	102.555	91.444	96.335	4.465	0.067	4.550	1.069	86.915	103.674	96.989	94.674	1.614
1992 Q3	4.560	0.086	4.566	95.596	1.090	100.207	91.937	96.176	4.410	0.016	4.542	1.016	82.251	103.969	102.282	93.873	1.463
1992 Q4	4.640	0.073	4.564	103.510	1.076	99.215	92.227	95.977	4.505	0.070	4.534	1.073	90.468	103.115	96.128	93.122	1.550
1993 Q1	4.526	0.017	4.550	92.349	1.018	96.271	94.608	94.667	4.419	0.113	4.536	1.120	83.047	99.139	88.545	93.359	1.635
1993 Q2	4.485	0.000	4.551	88.659	1.000	95.444	95.479	94.733	4.407	0.090	4.531	1.094	82.010	98.167	89.735	92.880	1.618
1993 Q3	4.451	-0.004	4.561	85.671	0.996	95.709	96.088	95.646	4.370	0.118	4.529	1.125	79.012	98.815	87.853	92.658	1.678

1993 Q4	4.549	-0.015	4.563	94.526	0.985	94.717	96.146	95.832	4.522	0.123	4.532	1.131	92.042	98.697	87.243	92.936	1.683
1994 Q1	4.521	-0.009	4.574	91.943	0.991	96.536	97.453	96.917	4.490	0.109	4.546	1.115	89.117	97.902	87.779	94.255	1.724
1994 Q2	4.588	0.000	4.578	98.289	1.000	98.090	98.062	97.367	4.575	0.088	4.563	1.092	97.002	98.137	89.872	95.855	1.662
1994 Q3	4.561	-0.013	4.585	95.651	0.987	97.330	98.643	98.002	4.519	0.049	4.573	1.051	91.764	97.489	92.783	96.836	1.562
1994 Q4	4.678	-0.010	4.596	107.568	0.990	97.594	98.614	99.100	4.663	0.036	4.595	1.037	105.978	97.695	94.218	98.939	1.543
1995 Q1	4.594	0.012	4.593	98.842	1.012	100.604	99.398	98.743	4.586	0.020	4.603	1.020	98.112	99.993	97.993	99.789	1.480
1995 Q2	4.601	-0.001	4.599	99.580	0.999	99.810	99.920	99.391	4.615	-0.019	4.606	0.981	100.962	99.345	101.269	100.035	1.396
1995 Q3	4.577	-0.010	4.596	97.219	0.990	99.380	100.356	99.100	4.567	-0.001	4.603	0.999	96.280	99.934	100.064	99.747	1.432
1995 Q4	4.648	-0.001	4.597	104.358	0.999	100.207	100.327	99.153	4.650	0.001	4.609	1.001	104.553	100.729	100.674	100.429	1.424

TABLE 3
DATA FOR JAPAN

SAMPLE PERIOD: 1960:1-1996:IV

SOURCE: IMF-INTERNATIONAL FINANCIAL STATISTICS

	IMPORT MODEL			15873..ZF...		15876..ZF...	15864..ZF...	15899BVRZF...	EXPORT MODEL				15872..ZF...	15874..DZF...	11074..DZF...	11066..IZF...
	logM	log(PM/PD)	logY	M	PM/PD	PM	PD	Y	logX	log(PX/PXW)	logYW	PX/PXW	X	PX	PXW	YW
1960Q1	1.878	1.465	2.804	6.542	4.327	78.931	18.240	16.513	1.317	0.013	3.436	1.013	3.733	21.617	21.347	31.070
1960Q2	1.867	1.451	2.808	6.470	4.267	78.466	18.389	16.540	1.404	0.011	3.434	1.011	4.073	21.510	21.272	31.012
1960Q3	1.896	1.431	2.839	6.659	4.183	77.538	18.537	17.107	1.501	0.007	3.437	1.007	4.488	21.339	21.200	31.078
1960Q4	1.912	1.400	2.880	6.766	4.054	75.603	18.648	17.817	1.606	0.004	3.433	1.004	4.983	21.275	21.182	30.959
1961Q1	2.059	1.383	2.908	7.841	3.987	75.603	18.964	18.313	1.425	-0.021	3.437	0.979	4.160	20.762	21.200	31.091
1961Q2	2.164	1.386	2.928	8.708	4.000	76.532	19.131	18.662	1.490	-0.025	3.462	0.975	4.436	20.868	21.401	31.884
1961Q3	2.184	1.376	2.944	8.880	3.960	77.308	19.520	18.999	1.557	-0.028	3.487	0.973	4.746	20.740	21.321	32.690
1961Q4	2.218	1.337	2.992	9.185	3.808	76.841	20.168	19.935	1.661	-0.031	3.511	0.969	5.264	20.676	21.332	33.487
1962Q1	2.187	1.314	3.006	8.905	3.720	75.935	20.411	20.211	1.521	-0.038	3.528	0.963	4.576	20.548	21.339	34.048
1962Q2	2.169	1.288	3.020	8.750	3.625	75.136	20.727	20.492	1.665	-0.035	3.535	0.966	5.284	20.526	21.256	34.298
1962Q3	2.099	1.264	3.033	8.161	3.541	73.857	20.856	20.755	1.774	-0.044	3.550	0.957	5.892	20.291	21.213	34.813
1962Q4	2.118	1.246	3.052	8.317	3.475	73.244	21.079	21.152	1.830	-0.051	3.552	0.951	6.234	20.227	21.276	34.899
1963Q1	2.191	1.223	3.065	8.942	3.398	74.710	21.988	21.432	1.629	-0.067	3.560	0.935	5.101	20.099	21.489	35.148
1963Q2	2.316	1.216	3.093	10.132	3.375	75.402	22.341	22.048	1.748	-0.048	3.595	0.953	5.742	20.462	21.479	36.419
1963Q3	2.317	1.201	3.121	10.147	3.322	74.710	22.489	22.863	1.855	-0.059	3.613	0.942	6.391	20.248	21.488	37.067
1963Q4	2.399	1.217	3.153	11.013	3.376	76.362	22.619	23.414	1.991	-0.074	3.631	0.929	7.320	20.163	21.708	37.753
1964Q1	2.445	1.233	3.186	11.529	3.432	78.013	22.731	24.203	1.793	-0.090	3.652	0.914	6.008	19.928	21.813	38.534
1964Q2	2.483	1.214	3.214	11.975	3.367	77.774	23.102	24.889	1.976	-0.091	3.667	0.913	7.212	19.885	21.784	39.147
1964Q3	2.395	1.191	3.229	10.966	3.290	76.495	23.250	25.249	2.064	-0.091	3.681	0.913	7.874	20.013	21.917	39.670
1964Q4	2.474	1.174	3.238	11.867	3.236	76.974	23.788	25.473	2.250	-0.107	3.697	0.899	9.488	19.799	22.026	40.327
1965Q1	2.425	1.193	3.248	11.300	3.297	80.010	24.271	25.738	2.137	-0.122	3.722	0.885	8.472	19.587	22.109	41.345
1965Q2	2.519	1.172	3.264	12.412	3.229	79.931	24.753	26.142	2.289	-0.126	3.734	0.881	9.870	19.469	22.092	41.863
1965Q3	2.436	1.164	3.285	11.432	3.203	79.214	24.735	26.701	2.337	-0.122	3.750	0.885	10.352	19.704	22.271	42.539
1965Q4	2.468	1.146	3.298	11.803	3.145	79.374	25.236	27.007	2.367	-0.134	3.770	0.875	10.660	19.508	22.305	43.367
1966Q1	2.551	1.142	3.325	12.618	3.134	80.488	25.661	27.789	2.289	-0.151	3.793	0.860	9.868	19.371	22.532	44.380
1966Q2	2.626	1.132	3.367	13.812	3.103	80.727	26.015	28.962	2.383	-0.141	3.810	0.868	10.839	19.665	22.651	45.133
1966Q3	2.609	1.124	3.390	13.587	3.076	80.090	26.033	29.653	2.470	-0.151	3.823	0.860	11.825	19.567	22.750	45.758
1966Q4	2.706	1.111	3.408	14.964	3.037	79.851	26.293	30.190	2.584	-0.154	3.831	0.858	13.256	19.625	22.887	46.092
1967Q1	2.738	1.097	3.434	15.449	2.994	80.170	26.776	31.003	2.353	-0.148	3.829	0.864	10.513	19.762	22.867	46.011
1967Q2	2.855	1.078	3.460	17.370	2.938	78.657	26.776	31.818	2.444	-0.118	3.831	0.889	11.519	20.173	22.694	46.110
1967Q3	2.784	1.067	3.494	16.187	2.965	79.612	26.850	32.928	2.500	-0.107	3.844	0.899	12.179	20.446	22.753	46.714
1967Q4	2.869	1.076	3.514	17.616	2.934	81.443	27.759	33.566	2.559	-0.106	3.872	0.899	12.929	20.388	22.671	48.028
1968Q1	2.888	1.034	3.536	17.962	2.811	79.263	28.204	34.339	2.565	-0.198	3.880	0.820	13.000	18.281	22.288	48.434
1968Q2	2.936	1.023	3.572	18.886	2.782	78.631	28.260	35.569	2.751	-0.194	3.890	0.824	15.657	18.444	22.395	48.910
1968Q3	2.933	0.995	3.595	18.781	2.703	77.000	28.483	36.417	2.802	-0.177	3.921	0.838	16.477	18.729	22.361	50.435
1968Q4	3.025	0.987	3.658	20.603	2.631	76.347	29.021	38.721	2.916	-0.184	3.947	0.832	18.464	18.790	22.588	51.785
1969Q1	3.010	0.971	3.662	20.286	2.640	77.000	29.169	38.921	2.773	-0.187	3.966	0.829	16.002	18.892	22.780	52.774
1969Q2	3.064	0.950	3.689	21.422	2.585	76.755	29.689	40.019	2.913	-0.180	3.987	0.835	18.421	19.157	22.934	53.906
1969Q3	3.130	0.937	3.712	22.875	2.551	77.489	30.375	40.940	2.985	-0.167	4.003	0.846	19.781	19.524	23.078	54.785
1969Q4	3.171	0.943	3.754	23.826	2.568	78.876	30.709	42.693	3.057	-0.190	4.010	0.827	21.271	19.544	23.629	55.137
1970Q1	3.211	0.937	3.783	24.803	2.552	80.915	31.710	43.934	2.927	-0.188	4.015	0.829	18.680	20.074	24.218	55.433
1970Q2	3.255	0.942	3.791	25.912	2.565	82.383	32.115	44.310	3.037	-0.184	4.026	0.832	20.839	20.359	24.474	56.054
1970Q3	3.286	0.942	3.819	26.731	2.565	82.546	32.178	45.550	3.103	-0.179	4.029	0.836	22.265	20.624	24.676	56.184
1970Q4	3.312	0.914	3.818	27.444	2.493	82.628	33.143	45.510	3.182	-0.175	4.022	0.839	24.100	20.828	24.820	55.800
1971Q1	3.284	0.909	3.822	26.678	2.483	83.362	33.579	45.694	3.105	-0.201	4.032	0.818	22.308	20.584	25.183	56.373
1971Q2	3.287	0.913	3.838	26.758	2.492	85.319	34.234	46.417	3.238	-0.198	4.036	0.820	25.482	20.889	25.473	56.626
1971Q3	3.209	0.899	3.855	24.750	2.458	84.993	34.576	47.210	3.304	-0.192	4.044	0.825	27.232	21.468	26.014	57.078
1971Q4	3.295	0.823	3.864	26.969	2.278	79.691	34.981	47.872	3.336	-0.202	4.057	0.817	28.117	21.740	26.598	57.828
1972Q1	3.320	0.775	3.892	27.656	2.171	76.347	35.168	48.997	3.204	-0.195	4.077	0.823	24.640	22.832	27.737	58.966
1972Q2	3.330	0.765	3.912	27.946	2.148	77.163	35.916	49.987	3.249	-0.179	4.103	0.837	25.783	23.539	28.139	60.520
1972Q3	3.386	0.760	3.931	29.558	2.139	77.489	36.227	50.971	3.364	-0.159	4.116	0.853	28.895	24.244	28.412	61.332
1972Q4	3.492	0.769	3.956	32.859	2.157	79.263	36.757	52.243	3.450	-0.152	4.155	0.859	31.508	24.728	28.783	63.723
1973Q1	3.506	0.751	3.987	33.308	2.120	80.099	37.785	53.904	3.291	-0.169	4.180	0.844	26.865	26.059	30.863	65.349
1973Q2	3.639	0.746	3.998	38.037	2.109	83.668	39.665	54.464	3.346	-0.176	4.198	0.839	28.376	27.771	33.118	66.528
1973Q3	3.641	0.768	3.997	38.116	2.155	87.930	40.806	54.452	3.376	-0.184	4.210	0.832	29.240	30.066	36.144	67.385
1973Q4	3.729	0.820	4.008	41.629	2.270	96.657	42.582	54.924	3.468	-0.161	4.219	0.851	32.069	31.327	36.795	67.997
1974Q1	3.630	1.075	3.980	37.720	2.929	136.217	46.506	53.540	3.315	-0.120	4.212	0.887	27.534	34.133	38.497	67.493
1974Q2	3.667	1.137	3.989	39.146	3.118	151.634	48.625	54.004	3.503	-0.125	4.215	0.882	33.214	37.585	42.608	67.701
1974Q3	3.604	1.141	4.001	36.742	3.130	157.751	50.400	54.667	3.578	-0.150	4.203	0.860	35.805	37.844	43.990	66.868
1974Q4	3.592	1.152	3.995	36.293	3.164	166.153	52.518	54.326	3.655	-0.163	4.164	0.849	38.656	38.933	45.836	64.306
1975Q1	3.438	1.198	3.993	31.116	3.306	177.358	53.609	54.218	3.428	-0.285	4.108	0.752	30.817	36.467	48.507	60.805
1975Q2	3.448	1.146	4.017	31.433	3.146	173.184	55.042	55.551	3.481	-0.303	4.099	0.739	32.501	35.724	48.359	60.252
1975Q3	3.483	1.124	4.028	32.569	3.077	171.098	55.602	56.143	3.537	-0.282	4.111	0.754	34.358	34.882	46.235	60.991

1975Q4	3.526	1.129	4.039	33.995	3.094	176.662	57.097	56.771	3.687	-0.291	4.136	0.747	39.930	34.377	46.011	62.579
1976Q1	3.504	1.130	4.048	33.256	3.096	180.835	58.406	57.299	3.643	-0.308	4.164	0.735	38.202	33.888	46.131	64.331
1976Q2	3.581	1.089	4.056	35.897	2.970	178.922	60.244	57.731	3.740	-0.303	4.187	0.739	42.089	34.075	46.133	65.855
1976Q3	3.612	1.069	4.068	37.033	2.914	177.705	60.991	58.455	3.762	-0.294	4.199	0.745	43.039	35.207	47.253	66.630
1976Q4	3.625	1.063	4.070	37.535	2.894	180.835	62.486	58.583	3.796	-0.296	4.216	0.744	44.508	36.112	48.561	67.741
1977Q1	3.593	1.034	4.094	36.346	2.813	179.792	63.919	60.007	3.691	-0.308	4.231	0.735	40.081	36.467	49.608	68.756
1977Q2	3.622	1.000	4.102	37.403	2.718	178.401	65.632	60.464	3.773	-0.296	4.236	0.743	43.493	37.571	50.537	69.106
1977Q3	3.591	0.965	4.108	36.267	2.625	173.011	65.913	60.833	3.813	-0.284	4.237	0.752	45.264	38.499	51.169	69.191
1977Q4	3.638	0.890	4.122	38.010	2.434	161.882	66.505	61.706	3.861	-0.248	4.243	0.780	47.510	40.760	52.236	69.585
1978Q1	3.611	0.791	4.139	37.011	2.205	147.380	66.847	62.713	3.860	-0.269	4.248	0.764	47.447	41.775	54.680	69.971
1978Q2	3.655	0.714	4.146	38.672	2.043	139.399	68.249	63.196	3.820	-0.163	4.271	0.849	45.586	47.508	55.925	71.570
1978Q3	3.657	0.609	4.160	38.741	1.838	126.338	68.747	64.071	3.832	-0.153	4.284	0.858	46.150	50.082	58.376	72.554
1978Q4	3.729	0.603	4.172	41.619	1.828	126.096	68.997	64.856	3.870	-0.197	4.302	0.821	47.954	49.819	60.676	73.836
1979Q1	3.747	0.698	4.074	42.380	2.010	138.431	68.872	58.815	3.743	-0.248	4.303	0.781	42.223	49.141	62.943	73.943
1979Q2	3.777	0.821	4.092	43.680	2.273	160.361	70.554	59.839	3.824	-0.281	4.323	0.755	45.793	48.528	64.301	75.418
1979Q3	3.773	0.948	4.101	43.528	2.575	183.419	71.239	60.397	3.860	-0.309	4.331	0.734	47.484	50.074	66.222	76.056
1979Q4	3.797	1.086	4.110	44.552	2.962	214.540	72.423	60.924	3.969	-0.381	4.337	0.683	52.952	47.712	69.872	76.447
1980Q1	3.715	1.201	4.124	41.065	3.325	245.661	73.887	61.823	3.918	-0.413	4.345	0.662	50.322	48.465	73.228	77.126
1980Q2	3.764	1.195	4.122	43.113	3.304	251.869	76.223	61.676	4.028	-0.364	4.322	0.695	56.128	51.448	74.058	75.331
1980Q3	3.684	1.134	4.131	39.806	3.107	239.372	77.033	62.226	4.038	-0.363	4.306	0.696	56.710	53.241	76.549	74.150
1980Q4	3.730	1.091	4.143	41.674	2.977	232.116	77.968	62.988	4.116	-0.323	4.314	0.724	61.314	55.144	76.198	74.770
1981Q1	3.705	1.082	4.159	40.636	2.951	232.277	78.715	63.977	4.036	-0.279	4.317	0.756	56.579	56.372	74.530	74.986
1981Q2	3.696	1.125	4.160	40.277	3.080	246.386	79.992	64.049	4.135	-0.274	4.320	0.761	62.517	54.505	71.669	75.207
1981Q3	3.660	1.150	4.170	38.865	3.159	253.481	80.242	64.693	4.169	-0.264	4.323	0.768	64.640	53.412	69.574	75.394
1981Q4	3.737	1.105	4.174	41.979	3.019	245.096	81.176	64.945	4.168	-0.268	4.321	0.765	64.602	55.560	72.609	75.259
1982Q1	3.758	1.097	4.183	42.864	2.995	243.161	81.176	65.556	4.071	-0.287	4.311	0.750	58.608	53.749	71.649	74.505
1982Q2	3.692	1.115	4.196	40.125	3.050	250.256	82.048	66.398	4.103	-0.290	4.303	0.748	60.506	52.610	70.299	73.933
1982Q3	3.643	1.162	4.199	38.215	3.195	263.479	82.453	66.652	4.111	-0.314	4.286	0.730	61.013	49.885	68.315	72.640
1982Q4	3.676	1.157	4.209	39.488	3.181	264.688	83.201	67.259	4.132	-0.315	4.275	0.730	62.329	49.261	67.511	71.882
1983Q1	3.665	1.056	4.213	39.059	2.875	238.485	82.952	67.563	4.082	-0.311	4.286	0.733	59.255	50.360	68.748	72.678
1983Q2	3.679	1.003	4.216	39.626	2.728	228.810	83.886	67.750	4.183	-0.305	4.305	0.737	65.542	49.652	67.350	74.105
1983Q3	3.670	1.026	4.231	39.267	2.791	233.487	83.668	68.782	4.226	-0.301	4.324	0.740	68.430	48.708	65.844	75.495
1983Q4	3.805	0.982	4.234	44.926	2.669	225.827	84.603	69.012	4.273	-0.264	4.347	0.768	71.722	50.963	66.353	77.277
1984Q1	3.806	0.967	4.250	44.953	2.631	223.489	84.945	70.100	4.231	-0.266	4.367	0.766	68.753	51.324	66.973	78.803
1984Q2	3.806	0.943	4.263	44.981	2.568	219.781	85.599	71.050	4.333	-0.269	4.373	0.764	76.201	51.044	66.797	79.284
1984Q3	3.804	0.988	4.270	44.870	2.686	229.778	85.537	71.490	4.360	-0.272	4.385	0.762	78.252	48.859	64.141	80.225
1984Q4	3.818	0.965	4.277	45.493	2.625	227.198	86.565	72.060	4.425	-0.263	4.391	0.769	83.513	48.271	62.761	80.683
1985Q1	3.814	0.979	4.293	45.313	2.663	230.826	86.690	73.170	4.295	-0.258	4.400	0.772	73.368	47.112	61.008	81.424
1985Q2	3.803	0.952	4.311	44.843	2.592	226.634	87.437	74.530	4.405	-0.270	4.408	0.763	81.894	48.340	63.322	82.129
1985Q3	3.718	0.908	4.317	41.190	2.475	216.717	87.562	74.950	4.397	-0.293	4.411	0.746	81.247	49.145	65.888	82.344
1985Q4	3.850	0.770	4.332	46.987	2.160	189.950	87.936	76.090	4.448	-0.265	4.414	0.767	85.429	53.103	69.210	82.573
1986Q1	3.848	0.667	4.322	46.898	1.949	171.569	88.029	75.310	4.311	-0.255	4.418	0.775	74.501	55.926	72.140	82.928
1986Q2	3.917	0.434	4.337	50.245	1.544	136.218	88.247	76.460	4.405	-0.214	4.417	0.807	81.840	58.926	72.998	82.884
1986Q3	3.916	0.313	4.343	50.199	1.368	120.091	87.780	76.960	4.398	-0.203	4.420	0.816	81.301	61.314	75.107	83.069
1986Q4	3.958	0.335	4.356	52.329	1.398	122.683	87.749	77.960	4.412	-0.230	4.427	0.795	82.407	60.409	76.030	83.702
1987Q1	3.916	0.361	4.361	50.199	1.435	125.275	87.281	78.340	4.323	-0.256	4.432	0.774	75.391	62.078	80.154	84.115
1987Q2	3.972	0.356	4.366	53.074	1.428	126.211	88.372	78.730	4.383	-0.246	4.446	0.782	80.113	64.194	82.071	85.277
1987Q3	4.007	0.391	4.384	54.975	1.478	130.315	88.154	80.140	4.394	-0.240	4.458	0.786	80.977	64.345	81.819	86.290
1987Q4	4.085	0.358	4.405	59.448	1.431	126.499	88.403	81.880	4.439	-0.241	4.480	0.786	84.728	68.045	86.571	88.232
1988Q1	4.110	0.296	4.422	60.938	1.344	118.219	87.936	83.240	4.347	-0.228	4.493	0.798	77.280	70.092	87.874	89.429
1988Q2	4.151	0.290	4.429	63.479	1.337	118.435	88.590	83.820	4.408	-0.220	4.503	0.803	82.137	71.176	88.651	90.300
1988Q3	4.149	0.355	4.449	63.372	1.426	126.499	88.714	85.500	4.458	-0.210	4.513	0.810	86.320	69.627	85.919	91.154
1988Q4	4.192	0.274	4.461	66.141	1.315	117.499	89.368	86.560	4.496	-0.201	4.526	0.818	89.692	73.197	89.476	92.430
1989Q1	4.218	0.314	4.474	67.875	1.368	121.603	88.870	87.670	4.428	-0.200	4.540	0.819	83.729	72.841	88.985	93.698
1989Q2	4.186	0.393	4.472	65.730	1.482	134.850	90.988	87.550	4.449	-0.213	4.548	0.808	85.510	70.271	86.994	94.397
1989Q3	4.224	0.430	4.492	68.316	1.538	140.106	91.113	89.330	4.505	-0.230	4.545	0.795	90.448	69.280	87.171	94.130
1989Q4	4.278	0.418	4.505	72.104	1.518	139.242	91.705	90.440	4.495	-0.245	4.550	0.782	89.611	70.089	89.591	94.652
1990Q1	4.247	0.465	4.508	69.883	1.593	146.586	92.047	90.780	4.454	-0.298	4.556	0.744	85.969	69.098	92.863	95.174
1990Q2	4.266	0.475	4.530	71.237	1.607	149.898	93.262	92.740	4.509	-0.332	4.561	0.717	90.826	66.702	92.973	95.726
1990Q3	4.286	0.456	4.541	72.652	1.577	147.450	93.480	93.820	4.545	-0.329	4.566	0.720	94.199	70.101	97.373	96.163
1990Q4	4.340	0.456	4.554	76.698	1.578	149.826	94.975	94.970	4.586	-0.317	4.564	0.729	98.084	74.305	101.980	95.974
1991Q1	4.309	0.399	4.564	74.386	1.491	142.338	95.474	95.990	4.507	-0.285	4.558	0.752	90.691	75.507	100.368	95.354
1991Q2	4.273	0.336	4.570	71.754	1.399	134.922	96.439	96.590	4.506	-0.230	4.554	0.794	90.529	73.496	92.541	94.969
1991Q3	4.308	0.322	4.574	74.325	1.380	133.051	96.439	96.900	4.572	-0.225	4.552	0.798	96.735	73.602	92.190	94.853
1991Q4	4.358	0.281	4.582	78.067	1.324	129.235	97.623	97.680	4.608	-0.226	4.555	0.798	100.297	76.873	96.382	95.148
1992Q1	4.303	0.264	4.588	73.899	1.302	126.643	97.280	98.250	4.531	-0.194	4.556	0.824	92.876	79.301	96.238	95.178
1992Q2	4.300	0.259	4.584	73.732	1.296	127.795	96.620	97.950	4.525	-0.201	4.550	0.818	92.310	79.324	96.989	94.674
1992Q3	4.296	0.251	4.580	73.427	1.285	126.211	96.184	97.490	4.579	-0.234	4.542	0.791	97.464	80.955	102.282	93.873
1992Q4	4.323	0.210	4.580	75.390	1.233	121.531	96.558	97.510	4.588	-0.166	4.534	0.847	98.300	81.457	96.128	93.122
1993Q1	4.320	0.185	4.581	75.159	1.204	118.636	96.558	97.600	4.552	-0.059	4.536	0.943	94.815	83.463	88.545	93.359
1993Q2	4.342	0.108	4.584	76.823	1.112	110.597	99.461	97.940	4.540	-0.041	4.531	0.960	93.658	86.104	89.735	92.880
1993Q3	4.381	0.036	4.586	79.907	1.037	103.630	99.928	98.090	4.576	-0.005	4.529	0.995	97.099	87.427	87.853	92.658

1993Q4	4.395	0.032	4.585	81.057	1.032	102.850	99.648	97.970	4.557	0.000	4.532	1.000	95.316	87.264	87.243	92.936
1994Q1	4.403	0.034	4.585	81.718	1.034	103.191	99.758	97.970	4.522	0.038	4.546	1.039	92.000	91.187	87.779	94.255
1994Q2	4.485	-0.004	4.590	86.931	0.996	99.830	100.225	98.470	4.547	0.019	4.563	1.019	94.346	91.555	89.872	95.855
1994Q3	4.511	-0.007	4.596	90.994	0.993	99.245	99.925	99.080	4.599	0.005	4.573	1.005	99.382	93.219	92.783	96.836
1994Q4	4.565	-0.017	4.593	96.109	0.983	98.758	100.458	98.800	4.622	0.006	4.595	1.006	101.728	94.807	94.218	98.939
1995Q1	4.542	0.019	4.588	93.906	1.019	101.827	99.958	98.290	4.569	0.021	4.603	1.022	96.442	100.113	97.993	99.789
1995Q2	4.603	-0.070	4.603	99.829	0.933	93.447	100.192	99.810	4.611	0.037	4.606	1.038	100.571	105.097	101.269	100.035
1995Q3	4.609	-0.013	4.610	100.392	0.988	98.709	99.958	100.460	4.613	-0.022	4.603	0.979	100.821	97.926	100.064	99.747
1995Q4	4.662	0.060	4.617	105.874	1.061	106.017	99.892	101.200	4.627	-0.031	4.609	0.969	102.166	97.574	100.674	100.429
1996Q1	4.600	0.134	4.643	99.462	1.144	113.959	99.625	103.880	4.559	-0.040	4.612	0.961	95.503	96.448	100.354	100.667
1996Q2	4.645	0.137	4.644	104.038	1.147	115.079	100.325	103.980	4.576	-0.065	4.621	0.937	97.099	92.855	99.109	101.575
1996Q3	4.647	0.146	4.640	104.283	1.157	115.859	100.158	103.560	4.620	-0.081	4.634	0.922	101.509	91.336	99.075	102.890
1996Q4	4.662	0.185	4.651	105.898	1.204	120.877	100.425	104.660	4.685	-0.097	4.642	0.907	108.266	89.693	98.863	103.719
1997Q1	4.647	0.253	4.671	104.323	1.288	129.077	100.192	106.770	4.623	-0.083	4.656	0.921	101.760	88.513	96.150	105.227
1997Q2	4.656	0.178	4.643	105.213	1.195	122.234	102.325	103.820	4.693	-0.076	4.667	0.927	109.226	87.666	94.605	106.397
1997Q3	4.682	0.140	4.650	107.949	1.150	117.683	102.291	104.630	4.721	-0.079	4.677	0.924	112.309	86.344	93.486	107.497
1997Q4	4.675	0.160	4.647	107.257	1.173	120.312	102.558	104.240	4.765	-0.113	4.680	0.893	117.340	83.620	93.597	107.745
1998Q1	4.614	0.168	4.649	100.862	1.183	120.852	102.158	104.430	4.670	-0.094	4.678	0.910	106.661	83.242	91.491	107.589
1998Q2	4.588	0.132	4.641	98.292	1.141	117.143	102.658	103.670	4.688	-0.146	4.670	0.864	108.609	78.191	90.507	106.656
1998Q3	4.611	0.152	4.638	100.632	1.164	118.829	102.091	103.370	4.698	-0.148	4.672	0.862	109.745	77.586	89.994	106.948
1998Q4	4.629	0.023	4.630	102.412	1.023	105.480	103.091	102.520	4.699	-0.093	4.669	0.911	109.875	83.714	91.911	106.625

TABLE 4

DATA FOR NORWAY

SAMPLE PERIOD: 1966:I-1986:IV

SOURCE: IMF-INTERNATIONAL FINANCIAL STATISTICS

	IMPORT MODEL								EXPORT MODEL								
				14273..ZF...		14276..ZF...	14364..ZF...	14299BVPZF...					14272..ZF...	14274..DZF...	11074..DZF...	11068..IZF...
	logM	log(PM/PD)	logY	M	PM/PD	PM	PD	Y	logX	log(PX/PXW)	logYW	PX/PXW	X	PX	PXW	YW
1966Q1	3.201	0.649	3.527	24.553	1.914	29.098	15.208	34.024	2.795	0.175	3.793	1.191	16.363	26.832	22.532	44.380
1966Q2	3.194	0.650	3.543	24.389	1.915	29.385	15.347	34.561	2.789	0.160	3.810	1.173	16.258	26.579	22.651	45.133
1966Q3	3.167	0.631	3.631	23.734	1.880	29.385	15.629	37.747	2.762	0.174	3.823	1.191	15.839	27.085	22.750	45.758
1966Q4	3.326	0.626	3.600	27.827	1.871	29.385	15.706	36.615	2.851	0.159	3.831	1.172	17.307	26.832	22.887	46.092
1967Q1	3.265	0.606	3.574	26.190	-1.833	29.098	15.872	35.670	2.820	0.160	3.829	1.173	16.783	26.832	22.867	46.011
1967Q2	3.349	0.594	3.630	28.481	1.811	29.098	16.065	37.712	2.893	0.148	3.831	1.160	18.042	26.326	22.694	46.110
1967Q3	3.253	0.578	3.681	25.862	1.783	29.098	16.321	39.704	2.789	0.146	3.844	1.157	16.258	26.326	22.753	46.714
1967Q4	3.349	0.575	3.659	28.481	1.777	29.098	16.372	38.811	2.960	0.149	3.872	1.161	19.300	26.326	22.671	48.028
1968Q1	3.366	0.553	3.622	28.972	1.739	28.808	16.565	37.413	2.976	0.147	3.880	1.159	19.615	25.820	22.286	48.434
1968Q2	3.343	0.530	3.633	28.318	1.699	28.232	16.616	37.809	2.955	0.122	3.890	1.130	19.195	25.313	22.395	48.910
1968Q3	3.314	0.521	3.711	27.499	1.684	28.232	16.770	40.912	2.904	0.144	3.921	1.155	18.251	25.820	22.361	50.435
1968Q4	3.453	0.522	3.668	31.591	1.685	28.520	16.924	39.192	3.088	0.134	3.947	1.143	21.923	25.820	22.588	51.785
1969Q1	3.432	0.527	3.657	30.937	1.693	28.808	17.013	38.732	3.120	0.115	3.966	1.122	22.657	25.566	22.780	52.774
1969Q2	3.489	0.529	3.659	32.737	1.697	29.098	17.142	38.839	3.083	0.119	3.987	1.126	21.818	25.820	22.934	53.906
1969Q3	3.468	0.509	3.751	32.082	1.663	28.808	17.321	42.581	3.033	0.132	4.003	1.141	20.769	26.326	23.078	54.785
1969Q4	3.615	0.521	3.742	37.157	1.684	29.385	17.449	42.172	3.111	0.137	4.010	1.146	22.447	27.085	23.629	55.137
1970Q1	3.518	0.488	3.641	33.719	1.629	30.249	18.565	38.149	3.063	0.149	4.015	1.160	21.398	28.098	24.218	55.433
1970Q2	3.687	0.503	3.716	39.939	1.653	31.113	18.821	41.107	3.196	0.138	4.026	1.148	24.440	28.098	24.474	56.054
1970Q3	3.556	0.490	3.774	35.029	1.633	31.401	19.231	43.540	3.073	0.157	4.029	1.169	21.608	28.857	24.676	56.184
1970Q4	3.716	0.490	3.756	41.085	1.632	31.977	19.590	42.769	3.192	0.168	4.022	1.183	24.335	29.363	24.820	55.800
1971Q1	3.603	0.488	3.736	36.694	1.629	32.432	19.911	41.951	3.143	0.167	4.032	1.182	23.175	29.748	25.163	56.373
1971Q2	3.643	0.499	3.748	38.192	1.646	33.056	20.078	42.448	3.153	0.165	4.036	1.179	23.404	30.034	25.473	56.626
1971Q3	3.592	0.476	3.815	36.320	1.610	32.744	20.334	45.385	3.061	0.155	4.044	1.168	21.339	30.379	26.014	57.078
1971Q4	3.690	0.470	3.770	40.064	1.600	33.056	20.655	43.362	3.201	0.131	4.057	1.139	24.552	30.308	26.598	57.828
1972Q1	3.592	0.438	3.771	36.320	1.550	32.744	21.129	43.439	3.246	0.112	4.077	1.118	25.699	31.023	27.737	58.966
1972Q2	3.662	0.440	3.793	38.941	1.553	33.368	21.488	44.399	3.307	0.110	4.103	1.116	27.305	31.413	28.139	60.520
1972Q3	3.550	0.401	3.847	34.822	1.493	32.744	21.937	46.834	3.210	0.116	4.116	1.122	24.781	31.892	28.412	61.332
1972Q4	3.736	0.423	3.859	41.936	1.526	33.992	22.270	47.425	3.315	0.131	4.155	1.140	27.534	32.827	28.783	63.723
1973Q1	3.745	0.395	3.820	42.311	1.485	33.680	22.680	45.626	3.380	0.115	4.180	1.121	29.370	34.609	30.863	65.349
1973Q2	3.718	0.383	3.810	41.187	1.466	33.992	23.180	45.132	3.356	0.163	4.198	1.177	28.682	38.989	33.118	66.528
1973Q3	3.681	0.397	3.906	39.690	1.488	34.927	23.475	49.690	3.290	0.167	4.210	1.182	26.846	42.722	36.144	67.385
1973Q4	3.838	0.455	3.895	46.429	1.576	37.734	23.950	49.137	3.455	0.175	4.219	1.192	31.665	43.865	36.795	67.997
1974Q1	3.877	0.517	3.889	48.302	1.677	41.476	24.732	48.884	3.433	0.202	4.212	1.224	30.976	47.136	38.497	67.493
1974Q2	3.854	0.556	3.876	47.178	1.744	43.971	25.206	48.211	3.380	0.241	4.215	1.272	29.370	54.213	42.608	67.701
1974Q3	3.780	0.563	3.932	43.808	1.756	45.218	25.757	51.029	3.273	0.264	4.203	1.303	26.387	57.305	43.990	66.868
1974Q4	3.854	0.580	3.938	47.178	1.786	47.089	26.373	51.301	3.380	0.272	4.164	1.313	29.370	60.172	45.836	64.306
1975Q1	3.813	0.504	3.857	45.306	1.655	45.530	27.514	47.304	3.201	0.321	4.108	1.379	24.552	66.869	48.507	60.805
1975Q2	3.908	0.523	3.944	49.799	1.687	47.401	28.104	51.642	3.307	0.318	4.099	1.375	27.305	66.491	48.359	60.252
1975Q3	3.754	0.452	3.987	42.685	1.572	45.530	28.963	53.898	3.491	0.279	4.111	1.322	32.812	61.104	46.235	60.991
1975Q4	3.885	0.509	4.005	48.676	1.663	48.961	29.437	54.894	3.565	0.250	4.136	1.284	35.336	59.085	46.011	62.579
1976Q1	3.945	0.486	3.988	51.671	1.625	48.961	30.129	53.957	3.539	0.246	4.164	1.279	34.418	58.987	46.131	64.331
1976Q2	3.893	0.477	3.968	49.050	1.611	49.896	30.975	52.905	3.525	0.251	4.187	1.286	33.959	59.320	46.133	65.855
1976Q3	3.885	0.494	4.043	48.676	1.639	51.767	31.591	56.991	3.539	0.300	4.199	1.350	34.418	63.805	47.253	66.630
1976Q4	4.055	0.476	4.061	57.662	1.609	51.143	31.783	58.036	3.584	0.300	4.216	1.350	36.024	65.577	48.561	67.741
1977Q1	4.015	0.474	4.038	55.416	1.606	52.703	32.809	56.699	3.525	0.307	4.231	1.360	33.959	67.460	49.608	68.756
1977Q2	4.008	0.476	4.002	55.041	1.609	54.262	33.719	54.684	3.558	0.293	4.236	1.340	35.106	67.709	50.537	69.106
1977Q3	4.001	0.460	4.068	54.667	1.584	54.574	34.450	58.433	3.403	0.284	4.237	1.329	30.058	68.002	51.169	69.191
1977Q4	4.048	0.479	4.095	57.288	1.615	56.133	34.758	60.013	3.539	0.255	4.243	1.290	34.418	67.406	52.236	69.585
1978Q1	3.945	0.434	4.052	51.671	1.543	55.198	35.770	57.495	3.584	0.248	4.248	1.282	36.024	70.103	54.680	69.971
1978Q2	3.966	0.452	4.077	52.795	1.571	57.069	36.322	58.967	3.885	0.291	4.271	1.338	48.644	74.839	55.925	71.570
1978Q3	3.754	0.435	4.133	42.685	1.545	57.380	37.129	62.377	3.603	0.192	4.284	1.211	36.713	70.710	58.376	72.554
1978Q4	3.930	0.445	4.122	50.923	1.560	58.628	37.578	61.698	3.785	0.198	4.302	1.218	44.055	73.932	60.676	73.836
1979Q1	3.900	0.448	4.077	49.425	1.565	58.940	37.668	58.964	3.726	0.229	4.303	1.257	41.531	79.143	62.943	73.943
1979Q2	3.938	0.476	4.105	51.297	1.609	61.435	38.181	60.669	3.791	0.237	4.323	1.268	44.285	81.528	64.301	75.418
1979Q3	3.862	0.512	4.196	47.553	1.669	64.553	38.668	66.397	3.732	0.317	4.331	1.373	41.761	93.636	68.222	76.056
1979Q4	4.087	0.526	4.200	59.535	1.691	66.424	39.271	66.693	3.841	0.333	4.337	1.395	46.579	97.460	69.872	76.447
1980Q1	4.094	0.524	4.186	59.969	1.688	68.666	40.668	65.781	3.917	0.420	4.345	1.522	50.271	111.434	73.228	77.126
1980Q2	4.065	0.521	4.143	58.239	1.683	70.790	42.053	63.008	3.841	0.451	4.322	1.569	46.581	116.227	74.058	75.331
1980Q3	3.960	0.500	4.207	52.473	1.649	71.498	43.360	67.169	3.669	0.478	4.306	1.613	39.202	123.452	76.549	74.150
1980Q4	4.094	0.495	4.211	59.969	1.640	72.914	44.463	67.393	3.870	0.455	4.314	1.576	47.965	120.059	76.198	74.770
1981Q1	4.003	0.468	4.192	54.779	1.596	74.330	46.566	66.153	3.798	0.480	4.317	1.615	44.633	120.387	74.530	74.986
1981Q2	3.971	0.438	4.164	53.049	1.549	74.330	47.989	64.334	3.695	0.494	4.320	1.638	49.153	117.406	71.669	75.207
1981Q3	3.960	0.448	4.207	52.473	1.565	77.161	49.309	67.132	3.649	0.464	4.323	1.590	38.418	110.612	69.574	75.394

1981Q4	4.122	0.435	4.220	61.699	1.545	77.161	49.938	68.043	3.895	0.496	4.321	1.642	49.153	119.248	72.609	75.259
1982Q1	4.055	0.401	4.192	57.662	1.494	77.869	52.130	66.170	3.836	0.499	4.311	1.647	46.328	117.975	71.649	74.505
1982Q2	4.034	0.361	4.163	56.509	1.434	76.453	53.309	64.245	3.860	0.463	4.303	1.589	47.458	111.714	70.299	73.933
1982Q3	4.003	0.398	4.198	54.779	1.488	81.409	54.694	66.583	3.733	0.477	4.286	1.611	41.808	110.082	68.315	72.640
1982Q4	4.103	0.379	4.242	60.546	1.461	81.409	55.707	69.549	3.860	0.462	4.275	1.588	47.458	107.182	67.511	71.882
1983Q1	3.971	0.378	4.230	53.049	1.460	83.532	57.220	68.700	3.872	0.418	4.286	1.519	48.023	104.463	68.748	72.678
1983Q2	4.003	0.337	4.225	54.779	1.400	81.409	58.130	68.388	3.918	0.407	4.305	1.502	50.283	101.164	67.350	74.105
1983Q3	3.960	0.332	4.234	52.473	1.393	82.116	58.938	69.025	3.811	0.421	4.324	1.524	45.198	100.325	65.844	75.495
1983Q4	4.122	0.310	4.288	61.699	1.363	81.409	59.707	72.788	3.962	0.438	4.347	1.550	52.542	102.862	66.353	77.277
1984Q1	4.113	0.307	4.269	61.122	1.359	82.824	60.938	71.478	3.972	0.434	4.367	1.544	53.107	103.388	66.973	78.803
1984Q2	4.132	0.299	4.274	62.275	1.349	83.532	61.925	71.843	3.940	0.437	4.373	1.549	51.412	103.441	66.797	79.284
1984Q3	4.084	0.306	4.323	59.392	1.358	84.948	62.541	75.451	3.883	0.415	4.385	1.514	48.588	97.100	64.141	80.225
1984Q4	4.237	0.319	4.333	69.195	1.376	87.072	63.284	76.146	4.044	0.429	4.391	1.536	57.062	96.385	62.761	80.683
1985Q1	4.245	0.319	4.347	69.771	1.375	88.488	64.335	77.234	4.024	0.434	4.400	1.543	55.932	94.161	61.008	81.424
1985Q2	4.194	0.325	4.301	66.312	1.385	90.611	65.438	73.787	4.014	0.429	4.408	1.535	55.367	97.213	63.322	82.129
1985Q3	4.194	0.323	4.339	66.312	1.381	91.319	66.130	76.645	3.940	0.412	4.411	1.510	51.412	99.464	65.888	82.344
1985Q4	4.377	0.304	4.417	79.574	1.355	90.611	66.874	82.808	4.054	0.425	4.414	1.529	57.627	105.823	69.210	82.573
1986Q1	4.332	0.262	4.362	76.114	1.300	88.488	68.092	78.398	3.963	0.301	4.418	1.352	53.672	97.506	72.140	82.928
1986Q2	4.460	0.243	4.342	86.494	1.278	88.488	69.374	76.894	4.004	0.157	4.417	1.170	54.802	85.436	72.998	82.884
1986Q3	4.347	0.245	4.404	77.268	1.278	91.319	71.451	81.769	3.895	0.065	4.420	1.067	49.153	80.124	75.107	83.069
1986Q4	4.412	0.227	4.459	82.457	1.255	91.319	72.746	86.392	3.993	0.070	4.427	1.073	54.237	81.567	76.030	83.702
1987Q1	4.336	0.220	4.392	76.429	1.246	93.333	74.887	80.779	4.024	0.111	4.432	1.118	55.932	89.607	80.154	84.115
1987Q2	4.327	0.234	4.374	75.714	1.264	96.191	76.092	79.386	4.024	0.095	4.446	1.100	55.932	90.253	82.071	85.277
1987Q3	4.298	0.181	4.407	73.571	1.198	92.381	77.092	82.004	3.993	0.105	4.458	1.111	54.237	90.916	81.819	86.290
1987Q4	4.516	0.114	4.474	91.429	1.121	87.619	78.169	87.725	4.174	0.098	4.480	1.103	64.972	95.484	88.571	88.232
1988Q1	4.317	0.121	4.407	75.000	1.129	90.476	80.131	82.034	3.963	0.090	4.493	1.094	53.672	96.133	87.874	89.429
1988Q2	4.317	0.135	4.380	75.000	1.145	93.333	81.528	79.872	4.073	0.108	4.503	1.114	58.757	98.795	88.651	90.300
1988Q3	4.185	0.167	4.408	65.714	1.182	97.143	82.182	82.064	4.014	0.061	4.513	1.063	55.367	91.319	85.919	91.154
1988Q4	4.269	0.178	4.434	71.429	1.195	99.048	82.913	84.255	4.063	0.034	4.526	1.034	59.322	92.555	88.476	92.430
1989Q1	4.174	0.156	4.344	65.000	1.168	98.095	83.951	77.048	4.111	0.128	4.540	1.136	61.017	101.122	88.985	93.698
1989Q2	4.269	0.158	4.364	71.429	1.172	100.000	85.349	76.602	4.200	0.145	4.548	1.156	66.667	100.535	88.994	94.397
1989Q3	4.141	0.171	4.394	62.857	1.186	101.905	85.913	80.997	4.156	0.121	4.545	1.128	63.842	98.349	87.171	94.130
1989Q4	4.269	0.174	4.423	71.429	1.190	102.857	86.426	83.388	4.225	0.121	4.550	1.128	68.362	101.069	89.591	94.652
1990Q1	4.308	0.142	4.398	74.286	1.152	100.952	87.605	81.306	4.217	0.132	4.556	1.141	67.797	105.950	92.863	95.174
1990Q2	4.336	0.130	4.393	76.429	1.139	100.952	88.605	80.853	4.233	0.054	4.561	1.055	68.927	98.101	92.973	95.726
1990Q3	4.228	0.134	4.426	68.571	1.143	101.905	89.157	83.612	4.217	0.162	4.566	1.176	67.797	114.494	97.373	96.163
1990Q4	4.373	0.130	4.466	79.286	1.139	102.857	90.323	86.983	4.297	0.341	4.564	1.406	73.446	143.390	101.980	95.974
1991Q1	4.288	0.066	4.420	72.857	1.068	97.143	90.985	83.125	4.304	0.162	4.558	1.175	74.011	117.973	100.368	95.354
1991Q2	4.408	0.075	4.426	82.143	1.078	99.048	91.900	83.588	4.334	0.102	4.554	1.107	76.271	102.489	92.541	94.969
1991Q3	4.238	0.099	4.426	69.286	1.104	101.905	92.272	83.634	4.249	0.097	4.552	1.102	70.057	101.599	92.190	94.853
1991Q4	4.408	0.094	4.474	82.143	1.099	101.905	92.721	87.665	4.334	0.108	4.555	1.114	76.271	107.335	96.382	95.148
1992Q1	4.364	0.061	4.452	78.571	1.063	99.048	93.170	85.759	4.392	0.020	4.556	1.021	80.791	98.230	96.236	95.178
1992Q2	4.355	0.041	4.450	77.857	1.042	98.095	94.144	85.585	4.378	0.049	4.550	1.050	79.661	101.823	96.989	94.674
1992Q3	4.355	0.019	4.469	77.857	1.019	96.191	94.375	87.270	4.356	0.052	4.542	1.053	77.966	107.741	102.282	93.873
1992Q4	4.408	0.034	4.524	82.143	1.035	98.095	94.785	92.165	4.406	0.054	4.534	1.055	81.921	101.459	96.128	93.122
1993Q1	4.327	0.026	4.467	75.714	1.027	98.095	95.542	87.123	4.371	0.062	4.536	1.064	79.096	94.214	88.545	93.359
1993Q2	4.336	0.017	4.472	76.429	1.017	98.095	96.465	87.533	4.440	0.064	4.531	1.066	84.746	95.687	89.735	92.880
1993Q3	4.364	0.027	4.519	78.571	1.027	99.048	96.413	91.719	4.392	-0.001	4.529	0.999	80.791	87.792	87.853	92.658
1993Q4	4.476	0.035	4.575	87.857	1.035	100.000	96.606	97.010	4.529	-0.043	4.532	0.958	92.655	83.537	87.243	92.936
1994Q1	4.476	0.024	4.537	87.857	1.024	99.048	96.734	93.399	4.529	-0.096	4.546	0.908	92.655	79.724	87.779	94.255
1994Q2	4.476	0.017	4.535	87.857	1.017	99.048	97.401	93.207	4.529	-0.047	4.563	0.954	92.655	85.733	89.872	95.855
1994Q3	4.561	0.011	4.562	95.714	1.011	99.048	97.926	95.810	4.504	-0.017	4.573	0.983	90.396	91.206	92.783	96.836
1994Q4	4.591	0.026	4.630	98.571	1.026	100.952	98.349	102.476	4.639	-0.016	4.595	0.984	103.390	93.695	94.218	98.939
1995Q1	4.569	0.017	4.587	96.429	1.017	100.952	99.272	98.210	4.616	0.015	4.603	1.015	101.130	99.511	97.993	99.789
1995Q2	4.619	-0.010	4.570	101.429	0.990	99.048	100.016	96.569	4.553	0.027	4.606	1.028	94.915	104.054	101.269	100.035
1995Q3	4.569	-0.002	4.612	96.429	0.998	100.000	100.221	100.728	4.577	-0.010	4.603	0.990	97.175	99.035	100.064	99.747
1995Q4	4.661	0.014	4.649	105.714	1.014	101.905	100.490	104.493	4.671	-0.003	4.609	0.997	106.780	100.403	100.674	100.429
1996Q1	4.654	0.008	4.648	105.000	1.008	100.952	100.183	104.385	4.737	0.008	4.612	1.008	114.124	101.153	100.354	100.667
1996Q2	4.681	-0.029	4.625	107.857	0.971	98.095	100.987	102.022	4.692	0.039	4.621	1.040	109.040	103.082	99.109	101.575
1996Q3	4.687	-0.035	4.666	108.571	0.965	98.095	101.806	106.265	4.697	0.086	4.634	1.089	109.605	107.926	99.075	102.690
1996Q4	4.787	-0.013	4.693	120.000	0.987	100.952	102.260	109.212	4.778	0.128	4.642	1.137	118.644	112.392	98.863	103.719
1997Q1	4.687	-0.071	4.657	108.571	0.931	96.191	103.298	105.344	4.747	0.109	4.656	1.115	115.254	107.212	96.150	105.227
1997Q2	4.805	-0.066	4.676	122.143	0.936	97.143	103.734	107.335	4.790	0.006	4.667	1.006	120.339	95.195	94.605	106.397
1997Q3	4.739	-0.019	4.693	114.286	0.981	101.905	103.901	109.194	4.747	0.053	4.677	1.055	115.254	98.586	93.486	107.497
1997Q4	4.878	-0.054	4.741	131.429	0.947	99.048	104.555	114.537	4.814	0.055	4.680	1.056	123.164	98.868	93.597	107.745
1998Q1	4.878	-0.063	4.703	131.429	0.939	99.048	105.498	110.247	4.845	-0.061	4.678	0.941	127.119	86.072	91.491	107.589
1998Q2	4.873	-0.068	4.691	130.714	0.934	99.048	106.064	108.920	4.747	-0.086	4.670	0.918	115.254	83.078	90.507	106.656
1998Q3	4.834	-0.043	4.711	125.714	0.958	101.905	106.348	111.126	4.702	-0.106	4.672	0.899	110.169	80.925	89.994	106.948
1998Q4	4.926	-0.067	4.743	137.857	0.935	100.000	106.950	114.770	4.795	-0.149	4.669	0.862	120.904	79.226	91.911	106.625

TABLE 5

DATA FOR THE UNITED KINGDOM

SAMPLE PERIOD: 1957:I-1967:IV

SOURCE: IMF-INTERNATIONAL FINANCIAL STATISTICS

	IMPORT MODEL								EXPORT MODEL							
				11273..ZF...		11276..DZF...	11264..ZF...	11299BVRZF...					11272..ZF...	11274..DZF...	11074..DZF...	11068..IZF...
	logM	log(E.PM/PD)	logY	M	PM/PD	PM	PD	Y	logX	log(PX/PXW)	logYW	PX/PXW	X	PX	PXW	YW
1957 Q1	3.136	1.032	3.686	23.012	2.806	22.140	7.885	39.891	2.994	-0.174	3.318	0.840	19.957	19.164	22.815	27.603
1957 Q2	3.099	1.024	3.687	22.172	2.784	22.073	7.929	39.943	3.003	-0.174	3.323	0.840	20.144	19.222	22.874	27.755
1957 Q3	3.086	0.970	3.681	21.898	2.639	21.204	8.034	39.679	2.934	-0.162	3.323	0.850	18.798	19.514	22.954	27.739
1957 Q4	3.106	0.927	3.681	22.328	2.528	20.535	8.124	39.684	2.993	-0.153	3.305	0.858	19.940	19.397	22.600	27.247
1958 Q1	3.095	0.891	3.695	22.093	2.436	19.866	8.154	40.253	2.962	-0.147	3.273	0.863	19.343	19.281	22.345	26.399
1958 Q2	3.071	0.873	3.672	21.566	2.393	19.799	8.274	39.341	2.910	-0.140	3.259	0.870	18.355	19.222	22.107	26.026
1958 Q3	3.097	0.882	3.690	22.133	2.416	19.732	8.169	40.027	2.926	-0.135	3.293	0.874	18.644	19.164	21.932	26.914
1958 Q4	3.157	0.871	3.693	23.500	2.389	19.799	8.289	40.158	2.978	-0.136	3.321	0.873	19.650	19.106	21.879	27.700
1959 Q1	3.125	0.860	3.703	22.758	2.364	19.665	8.318	40.568	2.936	-0.130	3.346	0.878	18.849	19.048	21.693	28.380
1959 Q2	3.180	0.854	3.720	24.047	2.349	19.398	8.259	41.249	2.998	-0.132	3.391	0.876	20.042	19.048	21.743	29.702
1959 Q3	3.149	0.866	3.737	23.324	2.377	19.598	8.244	41.980	2.943	-0.139	3.379	0.870	18.968	18.931	21.747	29.327
1959 Q4	3.235	0.884	3.759	25.395	2.421	20.067	8.289	42.905	3.058	-0.093	3.399	0.912	21.286	19.281	21.150	29.922
1960 Q1	3.281	0.879	3.781	26.606	2.409	20.000	8.304	43.874	3.072	-0.096	3.436	0.909	21.593	19.397	21.347	31.070
1960 Q2	3.310	0.865	3.772	27.387	2.376	19.799	8.333	43.486	3.049	-0.089	3.434	0.915	21.099	19.455	21.272	31.012
1960 Q3	3.269	0.855	3.786	26.293	2.351	19.665	8.363	44.059	2.961	-0.086	3.437	0.918	19.326	19.455	21.200	31.078
1960 Q4	3.314	0.853	3.789	27.485	2.346	19.799	8.438	44.205	3.056	-0.085	3.433	0.918	21.235	19.455	21.182	30.959
1961 Q1	3.336	0.821	3.806	28.097	2.272	19.308	8.498	44.991	3.054	-0.100	3.437	0.904	21.199	19.174	21.200	31.091
1961 Q2	3.294	0.828	3.810	26.938	2.289	19.694	8.603	45.140	3.047	-0.100	3.462	0.905	21.061	19.366	21.401	31.884
1961 Q3	3.246	0.795	3.806	25.689	2.214	19.308	8.722	44.989	2.983	-0.096	3.487	0.908	19.744	19.366	21.321	32.690
1961 Q4	3.280	0.784	3.804	26.581	2.191	19.308	8.812	44.875	3.047	-0.097	3.511	0.908	21.061	19.366	21.332	33.487
1962 Q1	3.316	0.774	3.810	27.562	2.169	19.306	8.902	45.168	3.034	-0.097	3.528	0.908	20.783	19.366	21.339	34.048
1962 Q2	3.320	0.756	3.820	27.651	2.130	19.308	9.067	45.588	3.096	-0.093	3.535	0.911	22.100	19.366	21.256	34.298
1962 Q3	3.307	0.758	3.826	27.295	2.133	19.308	9.052	45.878	3.011	-0.091	3.550	0.913	20.299	19.366	21.213	34.813
1962 Q4	3.332	0.759	3.820	28.008	2.137	19.308	9.037	45.590	3.080	-0.084	3.552	0.919	21.753	19.558	21.276	34.899
1963 Q1	3.320	0.764	3.825	27.651	2.147	19.694	9.171	45.818	3.102	-0.084	3.560	0.919	22.238	19.750	21.489	35.148
1963 Q2	3.348	0.766	3.869	28.454	2.151	19.887	9.246	47.911	3.132	-0.084	3.595	0.919	22.931	19.750	21.479	36.419
1963 Q3	3.355	0.776	3.875	28.633	2.172	19.887	9.156	48.188	3.057	-0.075	3.613	0.928	21.268	19.941	21.488	37.067
1963 Q4	3.409	0.787	3.890	30.238	2.196	20.273	9.231	48.887	3.153	-0.075	3.631	0.927	23.416	20.133	21.708	37.753
1964 Q1	3.461	0.798	3.901	31.844	2.220	20.659	9.306	49.431	3.159	-0.080	3.652	0.923	23.555	20.133	21.813	38.534
1964 Q2	3.478	0.769	3.916	32.379	2.158	20.466	9.485	50.193	3.174	-0.069	3.667	0.933	23.901	20.325	21.784	39.147
1964 Q3	3.438	0.763	3.919	31.130	2.144	20.466	9.545	50.327	3.054	-0.066	3.681	0.936	21.199	20.517	21.917	39.670
1964 Q4	3.480	0.761	3.938	32.468	2.141	20.659	9.650	51.297	3.180	-0.071	3.697	0.931	24.040	20.517	22.026	40.327
1965 Q1	3.432	0.752	3.936	30.952	2.121	20.659	9.740	51.210	3.147	-0.065	3.722	0.937	23.277	20.708	22.109	41.345
1965 Q2	3.478	0.729	3.936	32.379	2.073	20.659	9.964	51.204	3.211	-0.065	3.734	0.937	24.802	20.708	22.092	41.863
1965 Q3	3.469	0.715	3.945	32.111	2.045	20.466	10.009	51.689	3.156	-0.064	3.750	0.938	23.485	20.900	22.271	42.539
1965 Q4	3.497	0.716	3.955	33.003	2.046	20.659	10.099	52.199	3.247	-0.065	3.770	0.937	25.702	20.900	22.305	43.367
1966 Q1	3.534	0.721	3.956	34.252	2.056	20.852	10.144	52.272	3.244	-0.057	3.793	0.945	25.633	21.284	22.532	44.380
1966 Q2	3.491	0.719	3.962	32.825	2.051	21.239	10.353	52.552	3.177	-0.044	3.810	0.957	23.970	21.667	22.651	45.133
1966 Q3	3.499	0.705	3.966	33.093	2.024	21.046	10.398	52.776	3.177	-0.049	3.823	0.952	23.970	21.667	22.750	45.758
1966 Q4	3.452	0.698	3.964	31.576	2.010	21.046	10.473	52.686	3.304	-0.055	3.831	0.947	27.226	21.667	22.887	46.092
1967 Q1	3.577	0.686	3.976	35.769	1.985	20.852	10.503	53.279	3.278	-0.045	3.829	0.956	26.534	21.859	22.867	46.011
1967 Q2	3.587	0.667	3.987	36.125	1.948	20.659	10.608	53.873	3.276	-0.037	3.831	0.963	26.464	21.859	22.694	46.110
1967 Q3	3.515	0.680	3.987	33.628	1.974	20.852	10.563	53.894	3.147	-0.031	3.844	0.969	23.277	22.051	22.753	46.714
1967 Q4	3.589	0.659	3.990	36.215	1.932	20.670	10.697	54.062	3.120	-0.073	3.872	0.929	22.654	21.072	22.671	48.028
1968 Q1	3.688	0.606	4.023	39.961	1.833	19.860	10.832	55.874	3.327	-0.114	3.880	0.892	27.850	19.887	22.286	48.434
1968 Q2	3.649	0.590	4.012	38.444	1.804	20.025	11.101	55.279	3.319	-0.102	3.890	0.903	27.642	20.215	22.395	48.910
1968 Q3	3.645	0.594	4.030	38.266	1.811	20.190	11.146	56.246	3.304	-0.085	3.921	0.919	27.226	20.544	22.361	50.435
1968 Q4	3.674	0.589	4.034	39.426	1.802	20.356	11.296	56.506	3.385	-0.087	3.947	0.917	29.512	20.708	22.588	51.785
1969 Q1	3.683	0.577	4.034	39.782	1.781	20.521	11.520	56.479	3.339	-0.080	3.966	0.923	28.196	21.037	22.780	52.774
1969 Q2	3.706	0.570	4.043	40.674	1.768	20.687	11.700	56.992	3.453	-0.086	3.987	0.917	31.591	21.037	22.934	53.906
1969 Q3	3.658	0.585	4.050	38.801	1.794	21.018	11.715	57.394	3.440	-0.093	4.003	0.912	31.175	21.037	23.078	54.785
1969 Q4	3.690	0.587	4.055	40.050	1.799	21.349	11.864	57.669	3.506	-0.108	4.010	0.897	33.323	21.201	23.629	55.137
1970 Q1	3.689	0.573	4.048	40.000	1.774	21.443	12.089	57.260	3.493	-0.101	4.015	0.904	32.900	21.900	24.218	55.433
1970 Q2	3.731	0.557	4.067	41.700	1.745	21.595	12.373	58.405	3.483	-0.097	4.026	0.907	31.900	22.204	24.474	56.054
1970 Q3	3.745	0.552	4.077	42.300	1.737	21.748	12.523	58.970	3.414	-0.085	4.029	0.918	30.400	22.660	24.676	56.184
1970 Q4	3.791	0.531	4.083	44.300	1.700	21.748	12.792	59.339	3.535	-0.084	4.022	0.919	34.300	22.812	24.820	55.800
1971 Q1	3.754	0.519	4.071	42.700	1.681	22.052	13.121	58.598	3.466	-0.091	4.032	0.913	32.000	22.964	25.163	56.373
1971 Q2	3.777	0.517	4.085	43.700	1.677	22.812	13.600	59.447	3.561	-0.084	4.036	0.919	35.200	23.420	25.473	56.626
1971 Q3	3.745	0.524	4.100	42.300	1.688	23.289	13.794	60.324	3.567	-0.072	4.044	0.931	35.400	24.214	26.014	57.078
1971 Q4	3.791	0.528	4.100	44.300	1.695	23.635	13.944	60.327	3.572	-0.047	4.057	0.954	35.600	25.380	26.598	57.828
1972 Q1	3.807	0.556	4.098	45.000	1.743	24.702	14.168	60.116	3.544	-0.051	4.077	0.950	34.600	26.349	27.737	58.966
1972 Q2	3.800	0.550	4.124	44.700	1.734	25.035	14.438	61.788	3.558	-0.053	4.103	0.948	35.100	26.682	28.139	60.520
1972 Q3	3.784	0.505	4.127	44.000	1.657	24.321	14.677	62.006	3.434	-0.094	4.116	0.911	31.000	25.870	28.412	61.332

1972 Q4	3.892	0.491	4.149	49.000	1.634	24.568	15.036	63.340	3.674	-0.134	4.155	0.874	39.400	25.168	28.783	63.723
1973 Q1	3.892	0.555	4.197	49.000	1.742	26.668	15.305	66.490	3.635	-0.135	4.180	0.874	37.900	26.974	30.863	65.349
1973 Q2	3.906	0.641	4.196	49.700	1.899	29.973	15.784	66.437	3.653	-0.132	4.198	0.876	38.600	29.011	33.118	66.528
1973 Q3	3.957	0.698	4.199	52.300	2.010	32.203	16.024	66.609	3.689	-0.207	4.210	0.813	40.000	29.375	36.144	67.385
1973 Q4	3.951	0.707	4.187	52.000	2.027	33.605	16.577	65.822	3.686	-0.220	4.219	0.803	39.900	29.536	36.795	67.997
1974 Q1	3.906	0.778	4.162	49.700	2.177	37.532	17.242	64.184	3.679	-0.225	4.212	0.799	39.600	30.748	38.497	67.493
1974 Q2	3.945	0.865	4.182	51.700	2.375	43.439	18.293	65.507	3.726	-0.194	4.215	0.823	41.500	35.086	42.608	67.701
1974 Q3	3.918	0.850	4.192	50.300	2.339	43.775	18.718	66.171	3.745	-0.200	4.203	0.819	42.300	36.032	43.990	66.868
1974 Q4	3.898	0.823	4.176	49.300	2.278	44.579	19.567	65.084	3.691	-0.201	4.164	0.818	40.100	37.494	45.836	64.306
1975 Q1	3.835	0.826	4.179	46.300	2.285	47.420	20.753	65.326	3.706	-0.152	4.108	0.859	40.700	41.663	48.507	60.805
1975 Q2	3.784	0.717	4.165	44.000	2.048	46.537	22.720	64.363	3.664	-0.152	4.099	0.859	39.000	41.530	48.359	60.252
1975 Q3	3.850	0.620	4.165	47.000	1.860	44.085	23.704	64.386	3.671	-0.157	4.111	0.854	39.300	39.501	46.235	60.991
1975 Q4	3.822	0.593	4.175	45.700	1.810	44.393	24.532	65.054	3.723	-0.153	4.136	0.858	41.400	39.474	46.011	62.579
1976 Q1	3.813	0.579	4.194	45.300	1.764	45.348	25.426	66.276	3.735	-0.136	4.164	0.873	41.900	40.282	46.131	64.331
1976 Q2	3.906	0.520	4.187	49.700	1.683	44.294	26.321	65.822	3.777	-0.185	4.187	0.831	43.700	38.342	46.133	65.855
1976 Q3	3.892	0.527	4.197	49.000	1.694	45.654	26.947	66.483	3.780	-0.174	4.199	0.841	43.800	39.724	47.253	66.630
1976 Q4	3.898	0.484	4.216	49.300	1.622	45.706	28.177	67.792	3.809	-0.211	4.216	0.810	45.100	39.326	48.561	67.741
1977 Q1	3.865	0.494	4.217	47.700	1.639	48.535	29.608	67.803	3.852	-0.153	4.231	0.858	47.100	42.563	49.608	68.756
1977 Q2	3.926	0.480	4.214	50.700	1.617	49.997	30.928	67.599	3.867	-0.131	4.236	0.877	47.800	44.333	50.537	69.106
1977 Q3	3.857	0.487	4.222	47.300	1.627	51.123	31.420	68.169	3.914	-0.110	4.237	0.896	50.100	45.846	51.169	69.191
1977 Q4	3.857	0.510	4.235	47.300	1.665	53.095	31.889	69.069	3.842	-0.072	4.243	0.931	46.600	48.613	52.236	69.585
1978 Q1	3.906	0.546	4.242	49.700	1.726	55.927	32.403	69.559	3.875	-0.020	4.248	0.980	48.200	53.607	54.680	69.971
1978 Q2	3.898	0.493	4.251	49.300	1.637	54.518	33.298	70.184	3.902	-0.065	4.271	0.919	49.500	51.379	55.925	71.570
1978 Q3	3.912	0.540	4.261	50.000	1.717	58.125	33.857	70.905	3.900	-0.052	4.284	0.950	49.400	55.433	58.376	72.554
1978 Q4	3.926	0.566	4.268	50.700	1.762	60.712	34.461	71.270	3.906	-0.046	4.302	0.955	49.700	57.948	60.676	73.836
1979 Q1	3.918	0.568	4.262	50.300	1.765	62.708	35.534	70.933	3.800	-0.035	4.303	0.966	44.700	60.792	62.943	73.943
1979 Q2	4.020	0.568	4.302	55.700	1.764	64.966	36.831	73.856	3.998	0.000	4.323	1.000	54.400	64.307	64.301	75.418
1979 Q3	3.983	0.585	4.279	53.700	1.795	70.540	39.291	72.189	3.963	0.043	4.331	1.044	52.600	71.247	68.222	76.056
1979 Q4	4.025	0.571	4.287	56.000	1.770	71.510	40.409	72.733	3.968	0.019	4.337	1.020	52.900	71.237	69.872	76.447
1980 Q1	4.013	0.598	4.280	55.300	1.819	76.944	42.310	72.246	3.987	0.059	4.345	1.060	53.900	77.658	73.228	77.126
1980 Q2	3.965	0.577	4.260	52.700	1.781	79.717	44.770	70.820	3.942	0.106	4.322	1.112	51.500	82.321	74.058	75.331
1980 Q3	3.877	0.599	4.256	48.300	1.821	83.282	45.732	70.547	3.926	0.130	4.306	1.139	50.700	87.205	76.549	74.150
1980 Q4	3.844	0.586	4.245	46.700	1.797	83.723	46.581	69.737	3.930	0.133	4.314	1.142	50.900	87.048	76.198	74.770
1981 Q1	3.784	0.539	4.240	44.000	1.714	81.733	47.677	69.422	3.902	0.146	4.317	1.157	49.500	86.265	74.530	74.986
1981 Q2	3.822	0.423	4.241	45.700	1.526	76.358	50.025	69.469	3.908	0.111	4.320	1.117	49.800	80.044	71.669	75.207
1981 Q3	3.957	0.324	4.255	52.300	1.383	70.377	50.875	70.472	3.961	0.047	4.323	1.048	52.500	72.936	69.574	75.394
1981 Q4	3.932	0.363	4.254	51.000	1.437	74.927	52.127	70.373	3.959	0.055	4.321	1.057	52.400	76.716	72.809	75.259
1982 Q1	3.918	0.326	4.255	50.300	1.385	73.359	52.977	70.451	3.945	0.058	4.311	1.060	51.700	75.933	71.649	74.505
1982 Q2	3.957	0.270	4.266	52.300	1.309	71.598	54.677	71.233	3.960	0.040	4.303	1.041	53.500	73.176	70.299	73.933
1982 Q3	3.918	0.246	4.268	50.300	1.279	70.290	54.945	71.353	3.961	0.062	4.286	1.064	52.500	72.695	68.315	72.640
1982 Q4	3.912	0.212	4.273	50.000	1.236	68.432	55.348	71.740	3.976	0.044	4.275	1.045	53.300	70.521	67.511	71.882
1983 Q1	3.957	0.180	4.293	52.300	1.197	66.561	55.618	73.200	3.963	-0.009	4.286	0.991	52.600	68.113	68.748	72.878
1983 Q2	3.976	0.191	4.295	53.300	1.211	68.683	56.734	73.316	3.961	0.034	4.305	1.034	52.500	69.669	67.350	74.105
1983 Q3	3.989	0.151	4.305	54.000	1.183	66.877	57.494	74.043	3.987	0.042	4.324	1.043	53.900	68.695	65.844	75.495
1983 Q4	4.020	0.126	4.316	55.700	1.134	65.932	58.143	74.880	4.022	0.017	4.347	1.018	55.800	67.515	66.353	77.277
1984 Q1	4.048	0.123	4.326	57.300	1.131	66.157	58.478	75.625	4.045	0.009	4.367	1.010	57.100	67.611	66.973	78.803
1984 Q2	4.094	0.102	4.323	60.000	1.108	66.096	59.663	75.382	4.040	0.007	4.373	1.007	56.800	67.246	66.797	79.284
1984 Q3	4.089	0.045	4.322	59.700	1.046	62.952	60.178	75.376	4.074	-0.011	4.385	0.889	58.800	63.445	64.141	80.225
1984 Q4	4.132	-0.004	4.333	62.300	0.996	60.692	60.961	76.198	4.103	-0.018	4.391	0.982	60.500	61.616	62.761	80.683
1985 Q1	4.164	-0.052	4.350	64.300	0.949	58.581	61.698	77.467	4.116	-0.032	4.400	0.988	61.300	59.075	61.008	81.424
1985 Q2	4.122	0.011	4.366	61.700	1.011	64.511	63.823	78.716	4.145	0.036	4.408	1.036	63.100	65.626	63.322	82.129
1985 Q3	4.106	0.051	4.365	60.700	1.053	67.343	63.979	78.670	4.106	0.046	4.411	1.047	60.700	68.998	65.888	82.344
1985 Q4	4.122	0.071	4.373	61.700	1.073	68.993	64.293	79.244	4.119	0.033	4.414	1.034	61.500	71.542	69.210	82.573
1986 Q1	4.148	0.070	4.387	63.300	1.072	69.424	64.740	80.406	4.130	-0.048	4.418	0.954	62.200	68.786	72.140	82.928
1986 Q2	4.185	0.081	4.399	65.700	1.084	71.107	65.590	81.375	4.159	-0.062	4.417	0.940	64.000	68.622	72.998	82.884
1986 Q3	4.224	0.067	4.410	68.300	1.069	70.204	65.657	82.240	4.164	-0.111	4.420	0.895	64.300	67.185	75.107	83.069
1986 Q4	4.234	0.053	4.423	69.000	1.054	70.102	66.506	83.343	4.190	-0.130	4.427	0.878	66.000	66.751	76.030	83.702
1987 Q1	4.205	0.134	4.426	67.000	1.143	76.926	67.312	83.627	4.212	-0.085	4.432	0.918	67.500	73.607	80.154	84.115
1987 Q2	4.238	0.158	4.438	69.300	1.171	80.027	68.340	84.582	4.184	-0.041	4.446	0.960	65.600	78.778	82.071	85.277
1987 Q3	4.290	0.142	4.456	73.000	1.153	78.959	68.497	86.322	4.224	-0.042	4.458	0.959	68.300	78.446	81.819	86.290
1987 Q4	4.321	0.211	4.470	75.300	1.234	85.460	69.235	87.354	4.238	-0.025	4.480	0.976	69.300	84.461	86.571	88.232
1988 Q1	4.321	0.229	4.484	75.300	1.258	87.509	69.570	88.622	4.209	-0.023	4.493	0.978	67.300	85.916	87.874	89.429
1988 Q2	4.373	0.222	4.491	79.300	1.248	88.917	71.247	89.192	4.257	-0.004	4.503	0.996	70.600	88.333	88.651	90.300
1988 Q3	4.410	0.141	4.505	82.300	1.151	83.148	72.231	90.496	4.254	-0.030	4.513	0.970	70.400	83.363	85.919	91.154
1988 Q4	4.466	0.170	4.514	87.000	1.185	87.409	73.752	91.294	4.236	-0.036	4.526	0.964	69.100	86.276	89.476	92.430
1989 Q1	4.469	0.135	4.515	87.300	1.144	85.726	74.937	91.353	4.285	-0.046	4.540	0.955	72.600	84.950	88.985	93.698
1989 Q2	4.462	0.064	4.520	86.700	1.066	82.190	77.084	91.811	4.263	-0.063	4.548	0.939	71.000	81.675	86.994	94.397
1989 Q3	4.465	0.050	4.522	88.700	1.052	81.827	77.800	92.017	4.266	-0.066	4.545	0.936	72.700	81.625	87.171	94.130
1989 Q4	4.466	0.037	4.523	87.000	1.038	82.369	79.343	92.129	4.332	-0.088	4.550	0.917	76.100	82.168	89.591	94.652
1990 Q1	4.492	0.075	4.530	89.300	1.078	87.034	80.751	92.790	4.353	-0.075	4.556	0.928	77.700	86.194	92.863	95.174
1990 Q2	4.496	0.034	4.535	89.700	1.035	87.496	84.531	93.223	4.364	-0.063	4.561	0.939	78.600	87.284	92.973	95.726
1990 Q3	4.466	0.099	4.523	87.000	1.105	94.899	85.917	92.088	4.348	0.000	4.566	1.000	77.200	97.375	97.373	96.163

1990 Q4	4.446	0.143	4.517	85.300	1.154	100.697	87.259	91.567	4.354	0.001	4.564	1.001	77.800	102.052	101.980	95.974
1991 Q1	4.419	0.115	4.516	83.000	1.122	98.513	87.773	91.456	4.331	-0.009	4.558	0.991	76.000	99.480	100.368	95.354
1991 Q2	4.419	-0.002	4.510	83.000	0.998	89.421	89.607	90.917	4.363	-0.028	4.554	0.972	78.500	89.961	92.541	94.969
1991 Q3	4.415	-0.004	4.509	82.700	0.996	89.640	90.010	90.797	4.373	-0.021	4.552	0.979	79.300	90.281	92.190	94.853
1991 Q4	4.434	0.028	4.510	84.300	1.029	93.480	90.882	90.954	4.371	-0.028	4.555	0.972	79.100	93.705	96.382	95.148
1992 Q1	4.446	0.017	4.510	85.300	1.018	92.977	91.374	90.883	4.358	-0.021	4.556	0.979	78.100	94.211	96.238	95.178
1992 Q2	4.489	0.010	4.507	89.000	1.010	94.284	93.342	90.657	4.388	-0.002	4.550	0.998	80.500	96.801	96.989	94.674
1992 Q3	4.496	0.055	4.513	89.700	1.057	98.564	93.274	91.175	4.372	-0.006	4.542	0.994	79.200	101.696	102.282	93.873
1992 Q4	4.496	-0.070	4.517	89.700	0.932	87.297	93.655	91.596	4.408	-0.107	4.534	0.899	82.100	86.398	96.128	93.122
1993 Q1	4.466	-0.090	4.523	87.000	0.914	84.985	93.029	92.077	4.383	0.001	4.536	1.001	80.100	88.631	88.545	93.359
1993 Q2	4.477	-0.060	4.528	88.000	0.942	89.021	94.527	92.606	4.372	0.027	4.531	1.028	79.200	92.231	89.735	92.880
1993 Q3	4.492	-0.081	4.538	89.300	0.922	87.397	94.795	93.538	4.381	0.040	4.529	1.040	79.900	91.400	87.853	92.658
1993 Q4	4.508	-0.099	4.549	90.700	0.906	86.143	95.108	94.536	4.396	0.030	4.532	1.031	81.100	89.909	87.243	92.936
1994 Q1	4.541	-0.088	4.559	93.800	0.915	87.176	95.242	95.492	4.472	0.028	4.546	1.029	87.500	90.287	87.779	94.255
1994 Q2	4.543	-0.082	4.571	94.000	0.921	89.343	96.964	96.682	4.485	0.035	4.563	1.035	88.700	93.058	89.872	95.855
1994 Q3	4.524	-0.028	4.586	92.200	0.972	94.309	96.987	98.064	4.515	0.038	4.573	1.039	91.400	96.372	92.783	96.836
1994 Q4	4.578	-0.019	4.594	97.300	0.981	95.799	97.613	98.887	4.545	0.032	4.595	1.033	94.200	97.305	94.218	98.939
1995 Q1	4.571	-0.001	4.598	98.600	0.999	98.348	98.485	99.333	4.590	0.018	4.603	1.018	98.500	99.752	97.993	99.789
1995 Q2	4.596	0.006	4.602	99.100	1.006	100.889	100.274	99.703	4.579	-0.001	4.606	0.999	97.400	101.193	101.269	100.035
1995 Q3	4.612	0.006	4.607	100.700	1.006	101.103	100.542	100.168	4.620	-0.004	4.603	0.996	101.500	99.708	100.064	99.747
1995 Q4	4.641	-0.010	4.613	103.600	0.990	99.666	100.699	100.797	4.631	-0.012	4.609	0.988	102.600	99.469	100.674	100.429
1996 Q1	4.678	-0.026	4.621	107.600	0.974	98.573	101.213	101.607	4.660	-0.011	4.612	0.989	105.600	99.253	100.354	100.667
1996 Q2	4.690	-0.042	4.626	108.900	0.959	98.302	102.533	102.134	4.671	-0.009	4.621	0.991	106.800	98.205	99.109	101.575
1996 Q3	4.706	-0.050	4.633	110.600	0.951	97.694	102.711	102.780	4.698	0.003	4.634	1.003	109.700	99.368	99.075	102.890
1996 Q4	4.719	-0.021	4.642	112.100	0.979	101.212	103.338	103.706	4.709	0.040	4.642	1.041	110.900	102.871	98.863	103.719
1997 Q1	4.730	-0.052	4.652	113.300	0.949	98.635	103.941	104.838	4.728	0.049	4.656	1.051	113.100	101.010	96.150	105.227
1997 Q2	4.788	-0.076	4.661	120.100	0.926	97.510	105.261	105.734	4.757	0.048	4.667	1.049	116.400	99.272	94.605	106.397
1997 Q3	4.784	-0.099	4.671	119.600	0.906	96.318	106.289	106.783	4.770	0.045	4.677	1.046	117.900	97.758	93.486	107.497
1997 Q4	4.824	-0.101	4.675	124.400	0.904	96.862	107.139	107.278	4.774	0.055	4.680	1.056	118.400	96.860	93.597	107.745

TABLE 6
DATA FOR THE UNITED STATES

SAMPLE PERIOD: 1957:I-1997:IV
SOURCE: IMF-INTERNATIONAL FINANCIAL STATISTICS

IMPORT MODEL

	logM	log(PM/PD)	logY	11173..ZF... M	PM/PD	11175..DZF... PM	11164..ZF... PD	11199BVRZF... Y
1957 Q1	2.273	0.064	3.316	9.707	1.066	19.400	18.208	27.584
1957 Q2	2.269	0.049	3.314	9.672	1.050	19.300	18.382	27.489
1957 Q3	2.276	0.033	3.324	9.738	1.034	19.200	18.577	27.763
1957 Q4	2.340	0.014	3.313	10.380	1.014	18.900	18.648	27.475
1958 Q1	2.301	-0.013	3.285	9.981	0.987	18.600	18.840	26.703
1958 Q2	2.313	-0.031	3.291	10.105	0.970	18.400	18.979	26.863
1958 Q3	2.295	-0.043	3.314	9.926	0.958	18.200	19.004	27.495
1958 Q4	2.432	-0.049	3.337	11.382	0.952	18.100	19.004	28.136
1959 Q1	2.451	-0.060	3.398	11.601	0.942	17.900	18.997	29.911
1959 Q2	2.522	-0.063	3.424	12.452	0.939	17.900	19.067	30.692
1959 Q3	2.519	-0.064	3.424	12.414	0.938	18.000	19.186	30.680
1959 Q4	2.531	-0.058	3.427	12.569	0.944	18.200	19.280	30.781
1960 Q1	2.495	-0.052	3.449	12.122	0.949	18.300	19.280	31.463
1960 Q2	2.495	-0.058	3.444	12.124	0.943	18.300	19.399	31.308
1960 Q3	2.419	-0.061	3.446	11.238	0.941	18.300	19.450	31.366
1960 Q4	2.408	-0.077	3.433	11.115	0.926	18.100	19.556	30.963
1961 Q1	2.383	-0.084	3.439	10.833	0.920	18.000	19.569	31.142
1961 Q2	2.398	-0.084	3.457	11.006	0.920	18.000	19.575	31.724
1961 Q3	2.458	-0.089	3.473	11.682	0.915	18.000	19.676	32.246
1961 Q4	2.524	-0.090	3.494	12.481	0.914	18.000	19.701	32.901
1962 Q1	2.536	-0.109	3.511	12.628	0.897	17.700	19.739	33.473
1962 Q2	2.577	-0.113	3.522	13.158	0.893	17.700	19.826	33.635
1962 Q3	2.562	-0.129	3.531	12.961	0.879	17.500	19.914	34.168
1962 Q4	2.617	-0.131	3.534	13.690	0.877	17.500	19.958	34.255
1963 Q1	2.544	-0.127	3.546	12.732	0.880	17.600	19.990	34.661
1963 Q2	2.614	-0.130	3.558	13.654	0.879	17.600	20.034	35.110
1963 Q3	2.628	-0.131	3.578	13.653	0.877	17.700	20.178	35.786
1963 Q4	2.661	-0.123	3.585	14.315	0.885	17.900	20.235	36.046
1964 Q1	2.607	-0.108	3.607	13.554	0.897	18.200	20.285	36.848
1964 Q2	2.654	-0.105	3.619	14.204	0.900	18.300	20.323	37.285
1964 Q3	2.671	-0.115	3.632	14.449	0.892	18.200	20.410	37.786
1964 Q4	2.745	-0.112	3.635	15.564	0.894	18.300	20.473	37.900
1965 Q1	2.650	-0.114	3.659	14.155	0.892	18.300	20.514	38.809
1965 Q2	2.832	-0.127	3.672	16.982	0.881	18.200	20.660	[illegible]
1965 Q3	2.805	-0.126	3.692	16.530	0.882	18.300	20.755	40.130
1965 Q4	2.887	-0.119	3.716	17.936	0.888	18.500	20.842	41.087
1966 Q1	2.885	-0.122	3.740	17.903	0.885	18.600	21.010	42.104
1966 Q2	2.942	-0.121	3.744	18.946	0.886	18.800	21.222	42.263
1966 Q3	2.976	-0.131	3.750	19.602	0.877	18.800	21.427	42.532
1966 Q4	2.995	-0.122	3.759	19.976	0.885	19.100	21.587	42.901
1967 Q1	2.962	-0.124	3.768	19.334	0.883	19.100	21.631	43.295
1967 Q2	2.964	-0.136	3.767	19.371	0.872	19.000	21.777	43.267
1967 Q3	2.933	-0.147	3.775	18.790	0.863	19.000	22.011	43.579
1967 Q4	3.056	-0.161	3.782	21.239	0.852	18.900	22.193	43.904
1968 Q1	3.115	-0.161	3.802	22.539	0.852	19.100	22.427	44.790
1968 Q2	3.165	-0.161	3.819	23.696	0.851	19.300	22.683	45.561
1968 Q3	3.198	-0.184	3.826	24.482	0.832	19.100	22.960	45.888
1968 Q4	3.218	-0.181	3.831	24.968	0.835	19.400	23.238	46.091
1969 Q1	3.054	-0.192	3.846	21.195	0.826	19.400	23.501	46.823
1969 Q2	3.323	-0.204	3.849	27.752	0.816	19.500	23.910	46.957
1969 Q3	3.251	-0.208	3.855	25.827	0.812	19.700	24.253	47.240
1969 Q4	3.264	-0.182	3.851	26.142	0.834	20.500	24.589	47.021
1970 Q1	3.230	-0.182	3.849	25.281	0.834	20.800	24.954	46.958
1970 Q2	3.287	-0.193	3.851	26.762	0.824	20.900	25.356	47.049
1970 Q3	3.241	-0.181	3.860	25.565	0.835	21.400	25.640	47.445
1970 Q4	3.303	-0.189	3.848	27.192	0.828	21.500	25.976	46.916
1971 Q1	3.277	-0.174	3.875	26.501	0.841	22.000	26.174	48.187
1971 Q2	3.408	-0.185	3.880	30.212	0.831	22.000	26.473	48.423
1971 Q3	3.383	-0.186	3.887	29.455	0.830	22.200	26.736	48.769
1971 Q4	3.322	-0.174	3.889	27.725	0.841	22.600	26.882	48.672
1972 Q1	3.470	-0.164	3.909	32.129	0.849	23.000	27.094	49.828
1972 Q2	3.467	-0.142	3.931	32.049	0.868	23.700	27.313	50.956
1972 Q3	3.443	-0.138	3.940	31.274	0.871	24.000	27.581	51.442

EXPORT MODEL

	logX	log(PX/PXW)	logYW	PX/PXW	11172..ZF... X	11176..ZF... PX	11074..DZF... PXW	11068..IZF... YW
1957 Q1	2.802	-0.005	3.318	0.995	16.471	22.700	22.815	27.603
1957 Q2	2.814	-0.016	3.323	0.984	16.683	22.500	22.874	27.755
1957 Q3	2.704	-0.016	3.323	0.985	14.943	22.600	22.954	27.739
1957 Q4	2.716	0.004	3.305	1.004	15.116	22.700	22.600	27.247
1958 Q1	2.594	0.007	3.273	1.007	13.377	22.500	22.345	26.399
1958 Q2	2.645	0.004	3.259	1.004	14.063	22.200	22.107	26.026
1958 Q3	2.559	0.012	3.293	1.012	12.920	22.200	21.932	26.914
1958 Q4	2.678	0.019	3.321	1.019	14.557	22.300	21.879	27.700
1959 Q1	2.535	0.037	3.346	1.037	12.614	22.500	21.693	28.380
1959 Q2	2.616	0.030	3.391	1.030	13.680	22.400	21.743	29.702
1959 Q3	2.593	0.030	3.379	1.030	13.365	22.400	21.747	29.327
1959 Q4	2.648	0.062	3.399	1.064	14.127	22.500	21.150	29.922
1960 Q1	2.697	0.057	3.436	1.059	14.842	22.600	21.347	31.070
1960 Q2	2.793	0.056	3.434	1.058	16.336	22.500	21.272	31.012
1960 Q3	2.702	0.068	3.437	1.071	14.914	22.700	21.200	31.078
1960 Q4	2.788	0.065	3.433	1.067	16.249	22.600	21.182	30.959
1961 Q1	2.765	0.068	3.437	1.071	15.875	22.700	21.200	31.091
1961 Q2	2.731	0.076	3.462	1.079	15.345	23.100	21.401	31.884
1961 Q3	2.695	0.076	3.487	1.079	14.799	23.000	21.321	32.690
1961 Q4	2.809	0.084	3.511	1.088	16.592	23.200	21.332	33.487
1962 Q1	2.754	0.079	3.528	1.083	15.706	23.100	21.339	34.048
1962 Q2	2.867	0.066	3.535	1.068	17.593	22.700	21.256	34.298
1962 Q3	2.747	0.068	3.550	1.070	15.589	22.700	21.213	34.613
1962 Q4	2.789	0.065	3.552	1.067	16.266	22.700	21.276	34.899
1963 Q1	2.755	0.059	3.560	1.061	15.721	22.800	21.489	35.148
1963 Q2	2.910	0.060	3.595	1.062	18.349	22.800	21.479	36.419
1963 Q3	2.823	0.055	3.613	1.056	16.823	22.700	21.488	37.067
1963 Q4	2.962	0.045	3.631	1.046	19.332	22.700	21.708	37.753
1964 Q1	2.959	0.044	3.652	1.045	19.271	22.800	21.813	38.534
1964 Q2	2.991	0.041	3.667	1.042	19.915	22.700	21.784	39.147
1964 Q3	2.926	0.044	3.681	1.045	18.650	22.900	21.917	39.670
1964 Q4	3.059	0.052	3.697	1.053	21.313	23.200	22.026	40.327
1965 Q1	2.817	0.074	3.722	1.077	16.722	23.800	22.109	41.345
1965 Q2	3.058	0.070	3.734	1.073	21.286	23.700	22.092	41.863
1965 Q3	2.955	0.062	3.750	1.064	19.204	23.700	22.271	42.539
1965 Q4	3.100	0.056	3.770	1.058	22.192	23.600	22.305	43.367
1966 Q1	3.026	0.063	3.793	1.065	20.624	24.000	22.532	44.380
1966 Q2	3.089	0.070	3.810	1.073	21.955	24.300	22.651	45.133
1966 Q3	3.005	0.078	3.823	1.081	20.196	24.600	22.750	45.758
1966 Q4	3.088	0.092	3.831	1.097	21.924	25.100	22.887	46.092
1967 Q1	3.065	0.089	3.829	1.093	21.433	25.000	22.867	46.011
1967 Q2	3.107	0.089	3.831	1.093	22.365	24.800	22.694	46.110
1967 Q3	3.025	0.086	3.844	1.090	20.590	24.800	22.753	46.714
1967 Q4	3.107	0.098	3.872	1.103	22.357	25.000	22.671	48.028
1968 Q1	3.118	0.107	3.880	1.113	22.600	24.800	22.286	48.434
1968 Q2	3.170	0.122	3.890	1.130	23.806	25.300	22.395	48.910
1968 Q3	3.150	0.120	3.921	1.127	23.325	25.200	22.361	50.435
1968 Q4	3.197	0.117	3.947	1.124	24.449	25.400	22.588	51.785
1969 Q1	3.025	0.121	3.966	1.128	20.603	25.700	22.780	52.774
1969 Q2	3.317	0.110	3.987	1.116	27.590	25.600	22.934	53.906
1969 Q3	3.211	0.119	4.003	1.127	24.803	26.000	23.078	54.785
1969 Q4	3.289	0.126	4.010	1.134	26.819	26.800	23.629	55.137
1970 Q1	3.259	0.116	4.015	1.123	26.020	27.200	24.218	55.433
1970 Q2	3.343	0.113	4.026	1.120	28.305	27.400	24.474	56.054
1970 Q3	3.242	0.108	4.029	1.114	25.572	27.500	24.676	56.184
1970 Q4	3.329	0.106	4.022	1.112	27.902	27.600	24.820	55.800
1971 Q1	3.298	0.121	4.032	1.129	27.055	28.400	25.163	56.373
1971 Q2	3.328	0.109	4.036	1.115	27.888	28.400	25.473	56.626
1971 Q3	3.296	0.077	4.044	1.080	27.009	28.100	26.014	57.078
1971 Q4	3.205	0.066	4.057	1.068	24.652	28.400	26.598	57.828
1972 Q1	3.351	0.041	4.077	1.042	28.525	28.900	27.737	58.966
1972 Q2	3.356	0.034	4.103	1.034	28.871	29.100	28.139	60.520
1972 Q3	3.316	0.024	4.116	1.024	27.563	29.100	28.412	61.332

1972 Q4	3.518	-0.123	3.957	33.709	0.885	24.600	27.809	52.319	3.450	0.045	4.155	1.046	31.494	30.100	28.783	63.723
1973 Q1	3.548	-0.101	3.982	34.759	0.904	25.500	28.196	53.614	3.532	0.017	4.180	1.017	34.179	31.400	30.863	65.349
1973 Q2	3.545	-0.040	3.992	34.625	0.961	27.700	28.817	54.151	3.606	-0.013	4.198	0.987	36.823	32.700	33.118	66.528
1973 Q3	3.490	-0.026	3.988	32.778	0.974	28.700	29.453	53.957	3.521	-0.035	4.210	0.966	33.817	34.900	36.144	67.385
1973 Q4	3.528	0.038	3.997	34.054	1.039	31.300	30.139	54.441	3.647	0.014	4.219	1.014	38.343	37.300	36.795	67.997
1974 Q1	3.524	0.158	3.991	33.910	1.171	36.300	30.986	54.099	3.654	0.046	4.212	1.047	38.629	40.300	38.497	67.493
1974 Q2	3.535	0.262	3.994	34.311	1.299	41.400	31.863	54.289	3.723	-0.019	4.215	0.981	41.376	41.800	42.608	67.701
1974 Q3	3.550	0.297	3.984	34.806	1.346	44.200	32.834	53.720	3.580	0.014	4.203	1.014	35.860	44.600	43.990	66.868
1974 Q4	3.518	0.304	3.979	33.722	1.355	45.800	33.790	53.449	3.669	0.031	4.164	1.032	39.218	47.300	45.836	64.306
1975 Q1	3.440	0.295	3.966	31.184	1.343	46.200	34.404	52.782	3.638	0.010	4.108	1.010	38.002	49.000	48.507	60.805
1975 Q2	3.304	0.288	3.975	27.222	1.334	46.600	34.944	53.239	3.627	0.005	4.099	1.005	37.599	48.600	48.359	60.252
1975 Q3	3.412	0.234	3.992	30.320	1.264	45.100	35.689	54.142	3.570	0.044	4.111	1.045	35.508	48.300	46.235	60.991
1975 Q4	3.451	0.218	4.003	31.531	1.244	45.100	36.259	54.788	3.696	0.055	4.136	1.056	40.291	48.600	46.011	62.579
1976 Q1	3.529	0.228	4.026	34.092	1.257	46.000	36.609	56.018	3.635	0.068	4.164	1.071	37.919	49.400	46.131	64.331
1976 Q2	3.563	0.235	4.033	35.282	1.265	46.900	37.062	56.436	3.708	0.076	4.187	1.079	40.768	49.800	46.133	65.855
1976 Q3	3.638	0.234	4.037	38.016	1.264	47.600	37.654	56.664	3.623	0.064	4.199	1.067	37.447	50.400	47.253	66.630
1976 Q4	3.643	0.234	4.045	38.202	1.263	48.100	38.077	57.099	3.710	0.059	4.216	1.061	40.837	51.500	48.561	67.741
1977 Q1	3.700	0.245	4.057	40.466	1.277	49.500	38.749	57.786	3.667	0.045	4.231	1.046	39.140	51.900	49.608	68.756
1977 Q2	3.695	0.251	4.074	40.234	1.286	50.900	39.582	58.820	3.721	0.042	4.236	1.043	41.286	52.700	50.537	69.106
1977 Q3	3.714	0.249	4.092	41.032	1.282	51.500	40.159	59.886	3.638	0.024	4.237	1.024	38.023	52.400	51.169	69.191
1977 Q4	3.736	0.240	4.094	41.939	1.271	51.600	40.604	59.977	3.683	0.011	4.243	1.011	39.758	52.800	52.238	69.585
1978 Q1	3.753	0.261	4.097	42.656	1.298	53.600	41.291	60.185	3.670	-0.013	4.248	0.988	39.234	54.000	54.680	69.971
1978 Q2	3.776	0.266	4.136	43.663	1.305	55.300	42.364	62.539	3.828	-0.013	4.271	0.987	45.980	55.200	55.925	71.570
1978 Q3	3.776	0.249	4.148	43.657	1.282	55.600	43.365	63.177	3.752	-0.029	4.284	0.971	42.587	56.700	58.376	72.554
1978 Q4	3.795	0.250	4.160	44.487	1.284	56.800	44.241	64.057	3.855	-0.037	4.302	0.964	47.242	58.500	60.676	73.836
1979 Q1	3.764	0.262	4.163	43.110	1.299	58.900	45.344	64.238	3.813	-0.013	4.303	0.987	45.275	62.100	62.943	73.943
1979 Q2	3.811	0.279	4.164	45.182	1.322	62.000	46.899	64.319	3.858	0.000	4.323	1.000	47.359	64.300	64.301	75.418
1979 Q3	3.795	0.320	4.172	44.458	1.377	66.700	48.447	64.821	3.898	-0.029	4.331	0.972	49.317	66.300	68.222	76.056
1979 Q4	3.804	0.366	4.176	44.868	1.442	71.900	49.864	65.083	3.954	-0.030	4.337	0.970	52.121	67.800	69.872	76.447
1980 Q1	3.776	0.421	4.180	43.628	1.523	78.900	51.807	65.367	3.955	-0.052	4.345	0.949	52.180	69.500	73.228	77.126
1980 Q2	3.721	0.425	4.160	41.321	1.530	82.100	53.676	64.070	4.014	-0.056	4.322	0.945	55.357	70.000	74.058	75.331
1980 Q3	3.629	0.429	4.159	37.664	1.536	84.000	54.691	63.994	3.911	-0.053	4.306	0.948	49.967	72.600	76.549	74.150
1980 Q4	3.669	0.422	4.177	39.209	1.525	85.600	56.123	65.146	3.959	-0.004	4.314	0.996	52.403	75.900	76.198	74.770
1981 Q1	3.680	0.435	4.195	39.635	1.545	89.000	57.605	66.386	3.964	0.040	4.317	1.041	52.689	77.600	74.530	74.986
1981 Q2	3.711	0.408	4.189	40.905	1.503	88.600	58.942	65.931	3.971	0.088	4.320	1.093	53.059	78.300	71.669	75.207
1981 Q3	3.699	0.346	4.201	40.400	1.414	85.700	60.629	66.737	3.867	0.126	4.323	1.134	47.811	78.900	69.574	75.394
1981 Q4	3.738	0.322	4.189	42.015	1.381	84.900	61.498	65.974	3.910	0.092	4.321	1.096	49.891	79.600	72.609	75.259
1982 Q1	3.646	0.341	4.173	38.325	1.406	87.200	62.001	64.940	3.844	0.123	4.311	1.131	46.716	81.000	71.649	74.505
1982 Q2	3.648	0.306	4.178	38.393	1.358	85.500	62.951	65.236	3.886	0.131	4.303	1.139	48.696	80.100	70.299	73.933
1982 Q3	3.698	0.276	4.173	40.369	1.317	84.500	64.141	64.926	3.772	0.147	4.286	1.158	43.447	79.100	68.315	72.640
1982 Q4	3.637	0.269	4.174	37.963	1.308	84.100	64.273	64.960	3.762	0.157	4.275	1.170	43.050	79.000	67.511	71.882
1983 Q1	3.637	0.255	4.184	37.982	1.290	82.900	64.243	65.655	3.752	0.157	4.286	1.169	42.593	80.400	68.748	72.678
1983 Q2	3.743	0.227	4.207	42.206	1.254	81.600	65.047	67.182	3.765	0.173	4.305	1.189	43.154	80.100	67.350	74.105
1983 Q3	3.787	0.216	4.225	44.115	1.241	81.700	65.828	68.363	3.718	0.201	4.324	1.223	41.089	80.500	65.844	75.495
1983 Q4	3.833	0.215	4.245	46.223	1.239	82.300	66.398	69.756	3.769	0.204	4.347	1.227	43.338	81.400	66.353	77.277
1984 Q1	3.949	0.212	4.267	51.865	1.237	83.000	67.121	71.302	3.803	0.202	4.367	1.224	44.852	82.000	66.973	78.803
1984 Q2	3.957	0.212	4.284	52.298	1.236	83.900	67.858	72.520	3.819	0.211	4.373	1.235	45.548	82.500	66.797	79.284
1984 Q3	4.028	0.201	4.293	56.155	1.223	83.900	68.589	73.153	3.800	0.240	4.385	1.271	44.717	81.500	64.141	80.225
1984 Q4	3.941	0.191	4.300	51.476	1.210	83.600	69.093	73.714	3.856	0.254	4.391	1.289	47.281	80.900	62.761	80.683
1985 Q1	4.018	0.161	4.309	55.610	1.175	81.700	69.545	74.331	3.849	0.293	4.400	1.341	46.956	81.800	61.008	81.424
1985 Q2	4.078	0.143	4.316	58.912	1.154	81.200	70.378	74.917	3.815	0.257	4.408	1.293	45.382	81.900	63.322	82.129
1985 Q3	4.039	0.134	4.331	56.763	1.144	81.100	70.898	76.043	3.753	0.204	4.411	1.226	42.629	80.800	65.888	82.344
1985 Q4	4.078	0.138	4.340	58.916	1.148	82.100	71.532	76.671	3.797	0.149	4.414	1.160	44.561	80.300	69.210	82.573
1986 Q1	4.065	0.113	4.349	58.281	1.120	80.300	71.707	77.365	3.839	0.117	4.418	1.124	46.471	81.100	72.140	82.928
1986 Q2	4.156	0.084	4.353	63.811	1.088	77.800	71.532	77.696	3.904	0.108	4.417	1.114	49.619	81.300	72.998	82.884
1986 Q3	4.169	0.075	4.362	64.658	1.078	77.700	72.065	78.429	3.809	0.085	4.420	1.089	45.109	81.800	75.107	83.069
1986 Q4	4.173	0.095	4.368	64.927	1.100	79.700	72.474	78.867	3.901	0.073	4.427	1.076	49.461	81.800	78.030	83.702
1987 Q1	4.133	0.099	4.376	62.395	1.104	80.900	73.277	79.483	3.883	0.019	4.432	1.019	48.578	81.700	80.154	84.115
1987 Q2	4.183	0.116	4.386	65.590	1.123	83.400	74.234	80.351	3.957	0.005	4.446	1.005	52.318	82.500	82.071	85.277
1987 Q3	4.171	0.142	4.395	64.805	1.152	86.500	75.066	81.043	3.932	0.026	4.458	1.027	51.014	84.000	81.819	86.290
1987 Q4	4.225	0.132	4.412	68.404	1.141	86.400	75.716	82.464	4.054	-0.036	4.480	0.965	57.641	83.500	86.571	88.232
1988 Q1	4.189	0.131	4.419	65.954	1.140	86.800	76.168	83.016	4.112	-0.022	4.493	0.979	61.078	86.000	87.874	89.429
1988 Q2	4.199	0.144	4.431	66.622	1.155	89.100	77.130	83.998	4.146	-0.002	4.503	0.998	63.195	88.500	88.651	90.300
1988 Q3	4.212	0.117	4.436	67.518	1.125	87.900	78.158	84.424	4.088	0.051	4.513	1.052	59.622	90.400	85.919	91.154
1988 Q4	4.245	0.127	4.449	69.757	1.136	89.700	78.968	85.510	4.168	0.008	4.526	1.008	64.561	90.200	89.476	92.430
1989 Q1	4.205	0.131	4.461	67.048	1.140	91.000	79.843	86.537	4.197	0.026	4.540	1.026	66.493	91.300	88.985	93.698
1989 Q2	4.252	0.124	4.466	70.238	1.132	91.900	81.155	86.995	4.256	0.050	4.548	1.052	70.526	91.500	86.994	94.397
1989 Q3	4.265	0.098	4.470	71.190	1.103	90.200	81.811	87.392	4.192	0.041	4.545	1.042	66.180	90.800	87.171	94.130
1989 Q4	4.284	0.098	4.474	72.495	1.103	91.100	82.599	87.682	4.249	0.013	4.550	1.013	70.012	90.800	89.591	94.652
1990 Q1	4.252	0.096	4.486	70.225	1.101	92.500	84.021	88.750	4.293	-0.017	4.556	0.983	73.154	91.300	92.863	95.174
1990 Q2	4.278	0.071	4.488	71.922	1.073	91.100	84.874	88.965	4.320	-0.015	4.561	0.985	75.180	91.600	92.973	95.726
1990 Q3	4.275	0.082	4.487	71.890	1.085	93.700	86.339	88.833	4.247	-0.058	4.566	0.944	69.870	91.900	97.373	96.163

1990 Q4	4.268	0.117	4.479	71.400	1.124	98.600	87.739	88.149	4.313	-0.093	4.564	0.911	74.688	92.900	101.980	95.974
1991 Q1	4.183	0.077	4.475	65.571	1.080	95.500	88.461	87.782	4.325	-0.075	4.558	0.928	75.530	93.100	100.368	95.354
1991 Q2	4.233	0.048	4.481	68.957	1.050	93.400	88.986	88.342	4.374	0.003	4.554	1.003	79.347	92.800	92.541	94.969
1991 Q3	4.277	0.037	4.484	72.042	1.038	93.100	89.686	88.631	4.321	0.000	4.552	1.000	75.278	92.200	92.190	94.853
1991 Q4	4.304	0.042	4.491	73.994	1.042	94.200	90.364	89.182	4.395	-0.038	4.555	0.963	81.009	92.800	96.382	95.148
1992 Q1	4.255	0.031	4.501	70.455	1.032	93.900	90.999	90.126	4.410	-0.041	4.556	0.960	82.304	92.400	96.238	95.178
1992 Q2	4.318	0.025	4.511	75.063	1.026	94.100	91.742	91.007	4.421	-0.043	4.550	0.958	83.214	92.900	96.989	94.674
1992 Q3	4.351	0.033	4.519	77.563	1.034	95.600	92.464	91.708	4.370	-0.094	4.542	0.910	79.063	93.100	102.282	93.873
1992 Q4	4.382	0.026	4.531	80.002	1.027	95.600	93.120	92.874	4.451	-0.034	4.534	0.966	85.672	92.900	96.128	93.122
1993 Q1	4.350	0.000	4.529	77.444	1.000	93.900	93.908	92.700	4.428	0.048	4.536	1.049	83.780	92.900	88.545	93.359
1993 Q2	4.410	0.001	4.535	82.267	1.001	94.700	94.630	93.192	4.458	0.039	4.531	1.040	86.324	93.300	89.735	92.880
1993 Q3	4.438	-0.012	4.538	84.615	0.988	93.900	95.002	93.548	4.391	0.061	4.529	1.063	80.746	93.400	87.853	92.658
1993 Q4	4.484	-0.020	4.553	88.606	0.981	93.800	95.658	94.930	4.501	0.068	4.532	1.071	90.126	93.400	87.243	92.936
1994 Q1	4.448	-0.031	4.562	85.484	0.969	93.300	96.270	95.773	4.472	0.073	4.546	1.075	87.572	94.400	87.779	94.255
1994 Q2	4.520	-0.020	4.576	91.845	0.981	95.000	96.883	97.117	4.521	0.052	4.563	1.054	91.887	94.700	89.872	95.855
1994 Q3	4.568	-0.010	4.581	96.364	0.990	96.800	97.736	97.657	4.510	0.026	4.573	1.026	90.934	95.200	92.783	96.836
1994 Q4	4.602	-0.005	4.594	99.666	0.995	97.700	98.195	98.875	4.582	0.025	4.595	1.025	97.741	96.600	94.218	98.939
1995 Q1	4.570	-0.002	4.598	96.510	0.998	98.800	99.005	99.248	4.585	0.006	4.603	1.006	97.985	98.600	97.993	99.789
1995 Q2	4.603	0.009	4.600	99.737	1.009	100.800	99.880	99.455	4.608	-0.010	4.606	0.990	100.311	100.300	101.269	100.035
1995 Q3	4.620	0.001	4.608	101.506	1.001	100.400	100.317	100.237	4.578	0.005	4.603	1.005	97.343	100.600	100.064	99.747
1995 Q4	4.627	-0.007	4.616	102.201	0.993	100.100	100.798	101.057	4.647	-0.001	4.609	0.999	104.320	100.600	100.674	100.429
1996 Q1	4.596	-0.010	4.623	99.080	0.990	100.700	101.717	101.782	4.648	0.004	4.612	1.004	104.377	100.800	100.354	100.667
1996 Q2	4.643	-0.016	4.640	103.904	0.984	101.100	102.723	103.495	4.663	0.023	4.621	1.023	105.932	101.400	99.109	101.575
1996 Q3	4.691	-0.027	4.645	108.931	0.973	100.500	103.270	104.063	4.624	0.014	4.634	1.014	101.926	100.500	99.075	102.890
1996 Q4	4.705	-0.022	4.657	110.519	0.978	101.700	104.014	105.312	4.728	0.005	4.642	1.005	113.095	99.400	98.863	103.719
1997 Q1	4.681	-0.039	4.669	107.930	0.962	100.700	104.714	106.585	4.731	0.035	4.656	1.036	113.357	99.600	96.150	105.227
1997 Q2	4.762	-0.067	4.681	117.003	0.935	98.300	105.130	107.930	4.797	0.043	4.667	1.044	121.171	98.800	94.605	106.397
1997 Q3	4.813	-0.075	4.691	123.097	0.928	97.900	105.545	108.992	4.757	0.058	4.677	1.060	116.429	99.100	93.486	107.497
1997 Q4	4.834	-0.084	4.699	125.762	0.919	97.400	105.961	109.821	4.828	0.051	4.680	1.052	124.905	98.500	93.597	107.745

APPENDIX C

APPENDIX C

TABLE 16
LCLS PRICE ELASTICITIES WITH EQUAL WEIGHTS

	import model	export model
Australia	-0.027	0.140
Germany	-0.152	-0.022
Japan	-0.048	-0.138
Norway	-0.328	-0.035
UK	-0.010	0.088
US	-0.040	-0.029

TABLE 17
LCLS PRICE ELASTICITIES WITH DENSITY WEIGHTING

	import model	export model
Australia	-0.023	0.224
Germany	-0.145	-0.027
Japan	-0.040	-0.173
Norway	-0.261	-0.028
UK	-0.004	-0.056
US	-0.032	0.010

TABLE 18
LCLS INCOME ELASTICITIES WITH EQUAL WEIGHTS

	import model	export model
Australia	0.754	0.647
Germany	1.121	0.873
Japan	0.765	1.355
Norway	0.617	1.420
UK	1.249	0.619
US	1.163	1.084

APPENDIX D

APPENDIX D
DETAILS OF OLS ESTIMATION OF ELASTICITIES

AUSTRALIA

IMPORT MODEL

Regression Statistics	
Multiple R	0.984263868
R Square	0.968775362
Adjusted R Square	0.968283636
Standard Error	0.092343097
Observations	130

ANOVA

	df	*SS*	*MS*	*F*
Regression	2	33.59992183	16.79996092	1970.150491
Residual	127	1.082960437	0.008527248	
Total	129	34.68288227		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-3.205268715	0.115473637	-27.75758006	9.03909E-56
PM/PD	-0.361394508	0.06299989	-5.736430766	6.70403E-08
Y	1.709397076	0.029093258	58.75577948	6.06333E-94

EXPORT MODEL

Regression Statistics	
Multiple R	0.984753327
R Square	0.969739115
Adjusted R Square	0.969262565
Standard Error	0.118801194
Observations	130

ANOVA

	df	*SS*	*MS*	*F*
Regression	2	57.44055395	28.72027697	2034.918452
Residual	127	1.792442922	0.014113724	
Total	129	59.23299687		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-6.522167904	0.282860167	-23.05792284	3.17039E-47
PX/PXW	-0.972236849	0.100564137	-9.667828655	6.6114E-17
YW	2.409494266	0.062379444	38.62641464	4.68812E-72

GERMANY

IMPORT MODEL

Regression Statistics	
Multiple R	0.989462367
R Square	0.979035776
Adjusted R Square	0.978738411
Standard Error	0.091386738
Observations	144

ANOVA

	df	*SS*	*MS*	*F*
Regression	2	54.99272389	27.49636195	3292.371881
Residual	141	1.177566561	0.008351536	
Total	143	56.17029045		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-4.370685698	0.170160806	-25.68561939	4.91298E-55
PM/PD	-0.049491995	0.074722826	-0.662341048	0.508833827
Y	1.987749008	0.037284584	53.31289282	2.46094E-95

EXPORT MODEL

Regression Statistics	
Multiple R	0.993247818
R Square	0.986541228
Adjusted R Square	0.986350323
Standard Error	0.069852884
Observations	144

ANOVA

	df	*SS*	*MS*	*F*
Regression	2	50.43100066	25.21550033	5167.719251
Residual	141	0.687998975	0.004879425	
Total	143	51.11899964		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-2.611210807	0.191485675	-13.6365846	1.5676E-27
PX/PXW	-0.219105077	0.048069713	-4.55806917	1.10947E-05
YW	1.560787274	0.040995774	38.07190617	4.55852E-76

JAPAN

IMPORT MODEL

Regression Statistics	
Multiple R	0.993366781
R Square	0.986777562
Adjusted R Square	0.98660472
Standard Error	0.08758923
Observations	156

ANOVA

	df	*SS*	*MS*	*F*
Regression	2	87.59929143	43.79964572	5709.120062
Residual	153	1.173796613	0.007671873	
Total	155	88.77308805		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-1.474150301	0.113369459	-13.00306371	1.64446E-26
PM/PD	-0.207240504	0.028834736	-7.187182207	2.72575E-11
Y	1.293525593	0.023361321	55.37039658	4.0625E-103

EXPORT MODEL

Regression Statistics	
Multiple R	0.992222612
R Square	0.984505712
Adjusted R Square	0.984303172
Standard Error	0.124974209
Observations	156

ANOVA

	df	*SS*	*MS*	*F*
Regression	2	151.8374271	75.91871354	4860.803336
Residual	153	2.389638578	0.015618553	
Total	155	154.2270657		

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-8.065008716	0.122641946	-65.76060625	4.3785E-114
PX/PXW	-0.793203634	0.102010972	-7.775669766	1.02802E-12
YW	2.742155084	0.030097534	91.10896225	3.327E-135

APPENDIX D (continued)

NORWAY

IMPORT MODEL

Regression Statistics	
Multiple R	0.973302362
R Square	0.947317487
Adjusted R Square	0.946500704
Standard Error	0.096931223
Observations	132

ANOVA

	df	SS	MS	F
Regression	2	21.7944626	10.8972313	1159.815171
Residual	129	1.212040394	0.009395662	
Total	131	23.00650299		

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.594638271	0.281905203	-2.109355428	0.036846473
PM/PD	-0.161064555	0.095153267	-1.692685498	0.092929157
Y	1 126062144	0.060869341	18.49966052	4.19845E-38

EXPORT MODEL

Regression Statistics	
Multiple R	0.976214628
R Square	0.952994999
Adjusted R Square	0.952266239
Standard Error	0.123935114
Observations	132

ANOVA

	df	SS	MS	F
Regression	2	40.1721433	20.08607165	1307.694417
Residual	129	1.981428696	0.015359912	
Total	131	42.15357199		

	Coefficients	Standard Error	t Stat	P-value
Intercept	-5.969761111	0.207797696	-28.72871657	6.59222E-58
PX/PXW	-0.155783256	0.072947271	-2.135559759	0.034604958
YW	2.274101187	0.047019844	48.36471116	1.52196E-84

UNITED KINGDOM

IMPORT MODEL

Regression Statistics	
Multiple R	0.991943065
R Square	0.983951043
Adjusted R Square	0.983751677
Standard Error	0.058280254
Observations	164

ANOVA

	df	SS	MS	F
Regression	2	33.52705687	16.76352843	4935.402407
Residual	161	0.546850663	0.003396588	
Total	163	34.07390753		

	Coefficients	Standard Error	t Stat	P-value
Intercept	-2.647957157	0.191776324	-13.80738502	4.13768E-29
PM/PD	-0.053572065	0.035520547	-1.508199338	0.13348333
Y	1.567054241	0.04223882	37.09985827	8.60427E-81

EXPORT MODEL

Regression Statistics	
Multiple R	0.966206619
R Square	0.933555231
Adjusted R Square	0.93272983
Standard Error	0.138336633
Observations	164

ANOVA

	df	SS	MS	F
Regression	2	43.28919409	21.64459704	1131.032548
Residual	161	3.081060869	0.019137024	
Total	163	46.37025496		

	Coefficients	Standard Error	t Stat	P-value
Intercept	-1.310014514	0.135869961	-9.641678712	1.19451E-17
PX/PXW	0.40441658	0.169610494	2.384384196	0.018271434
YW	1.236095585	0.031553118	39.17506932	3.20931E-84

UNITED STATES

IMPORT MODEL

Regression Statistics	
Multiple R	0.913579248
R Square	0.834627042
Adjusted R Square	0.832572719
Standard Error	0.289814009
Observations	164

ANOVA

	df	SS	MS	F
Regression	2	68.24841699	34.12420849	406.2784969
Residual	161	13.52273775	0.08399216	
Total	163	81.77115474		

	Coefficients	Standard Error	t Stat	P-value
Intercept	-2.216691831	0.219442143	-10.10148644	6.87219E-19
PM/PD	0.144793991	0.142234218	1.017996886	0.310206753
Y	1.428395873	0.05462775	26.14780714	7.81186E-60

EXPORT MODEL

Regression Statistics	
Multiple R	0.96927344
R Square	0.939491001
Adjusted R Square	0.938739336
Standard Error	0.15274452
Observations	164

ANOVA

	df	SS	MS	F
Regression	2	58.32165052	29.16082526	1249.880621
Residual	161	3.756273029	0.023330888	
Total	163	62.07792355		

	Coefficients	Standard Error	t Stat	P-value
Intercept	-2.308812864	0.124828861	-18.49585537	1.11404E-41
PX/PXW	-1.153994341	0.17784497	-6.488765713	1.01865E-09
YW	1.451679425	0.029783884	48.74043393	2.62239E-98

APPENDIX E

EXPLANATIONS:

a1: Pointwise import price elasticity
se(a1): Standard Error of a1
f1: Density Ordinate for Import Price Variable
a2: Pointwise Income Elasticity of Imports
se(a2): Standard Error of a2
a1*f1: Density-elasticity product

b1: Pointwise export price elasticity
se(b1): Standard Error of b1
g1: Density Ordinate for Export Price Variable
b2: Pointwise Income Elasticity of Exports
se(b2): Standard Error of b2
b1*g1: Density-Elasticity Product

K: Sum of Density Ordinates
L: Sum of Density-Elasticity Products
M: Density-Weighted Point Elasticity Estimate
N: Equally-Weighted Point Elasticity Estimate

TABLE 19 POINTWISE AND POINT ELASTICITY ESTIMATES FOR AUSTRALIA

LOCAL LINEAR LEAST SQUARES

SAMPLE PERIOD: 1966:III-1998:IV

IMPORT MODEL

	a1	se(a1)	f1	a2	se(a2)	a1*f1
1966 Q3	-1.820	0.067	1.027	0.709	0.198	-1.869
1966 Q4	-1.962	0.515	0.873	0.486	1.521	-1.713
1967 Q1	-2.654	3.529	0.865	-0.720	10.417	-2.297
1967 Q2	-2.428	0.544	0.767	-0.393	1.606	-1.863
1967 Q3	-2.922	0.413	1.548	-1.174	1.218	-4.524
1967 Q4	-2.971	0.412	1.586	-1.584	1.215	-4.712
1968 Q1	-2.804	0.120	2.839	-0.899	0.354	-7.960
1968 Q2	-3.008	0.392	2.834	-1.797	1.157	-8.525
1968 Q3	-47.089	4.846	2.802	-4.648	14.305	-131.956
1968 Q4	-15.861	0.424	2.827	0.614	1.253	-44.832
1969 Q1	-50.345	4.221	2.799	-4.600	12.459	-140.898
1969 Q2	-22.917	0.432	2.814	-0.487	1.274	-64.490
1969 Q3	-14.620	3.936	2.837	1.444	11.617	-41.481
1969 Q4	-6.060	0.289	2.819	0.783	0.853	-17.083
1970 Q1	-5.621	0.192	2.807	0.310	0.566	-15.775
1970 Q2	-1.962	0.283	2.838	-0.090	0.834	-5.568
1970 Q3	0.919	0.335	2.826	-0.052	0.990	2.598
1970 Q4	2.525	0.391	2.709	-0.632	1.153	6.841
1971 Q1	2.686	0.357	2.838	-1.108	1.054	7.622
1971 Q2	2.273	0.340	2.815	-1.216	1.003	6.399
1971 Q3	-1.201	0.453	2.759	-1.467	1.338	-3.315
1971 Q4	-1.450	0.443	2.658	-1.170	1.309	-3.855
1972 Q1	0.827	0.375	2.619	-1.496	1.106	2.166
1972 Q2	-1.618	0.454	2.831	-1.002	1.341	-4.581
1972 Q3	-1.497	0.413	2.091	-1.174	1.220	-3.130
1972 Q4	0.283	0.710	0.915	3.210	2.096	0.259
1973 Q1	-1.638	0.826	0.372	0.759	2.438	-0.609
1973 Q2	-1.408	0.494	0.318	1.519	1.459	-0.448
1973 Q3	-0.318	0.725	0.279	4.307	2.140	-0.089
1973 Q4	-0.189	5.657	0.177	4.168	16.696	-0.034
1974 Q1	0.753	0.462	0.628	1.627	1.363	0.473
1974 Q2	-0.824	1.098	1.307	-2.343	3.241	-1.077
1974 Q3	-1.086	0.764	1.296	-4.373	2.255	-1.407
1974 Q4	-2.821	0.827	3.157	-1.280	2.442	-8.906
1975 Q1	-2.833	0.128	4.202	-1.362	0.377	-11.906

EXPORT MODEL

	b1	se(b1)	g1	b2	se(b2)	b1*g1
1966 Q3	-1.445	0.588	0.766	-0.322	1.109	-1.107
1966 Q4	-1.046	0.576	3.365	0.223	1.086	-3.521
1967 Q1	-1.082	0.554	3.478	0.091	1.044	-3.764
1967 Q2	-1.058	0.591	3.259	0.214	1.114	-3.449
1967 Q3	-0.594	0.193	4.264	0.789	0.363	-2.532
1967 Q4	-0.597	0.209	4.223	0.744	0.394	-2.521
1968 Q1	-0.676	0.490	3.940	0.672	0.924	-2.664
1968 Q2	-1.446	0.566	3.861	1.233	1.066	-5.585
1968 Q3	0.351	0.766	3.495	0.975	1.443	1.226
1968 Q4	3.508	0.734	3.015	2.219	1.384	10.575
1969 Q1	0.075	1.031	4.137	2.489	1.942	0.309
1969 Q2	-0.460	0.656	4.040	2.645	1.237	-1.859
1969 Q3	-0.240	7.474	3.753	3.441	14.084	-0.900
1969 Q4	-0.210	0.655	3.937	4.169	1.235	-0.826
1970 Q1	-0.197	0.805	2.838	4.074	1.518	-0.559
1970 Q2	-0.524	0.743	2.823	2.867	1.400	-1.480
1970 Q3	-0.568	0.604	2.306	2.568	1.138	-1.310
1970 Q4	-0.426	0.257	1.890	2.808	0.484	-0.804
1971 Q1	-0.527	0.447	1.829	2.405	0.843	-0.964
1971 Q2	-0.590	0.556	2.206	2.345	1.048	-1.302
1971 Q3	-0.550	0.396	1.582	2.236	0.745	-0.870
1971 Q4	-0.478	6.584	1.198	2.177	12.407	-0.572
1972 Q1	-0.292	0.148	2.148	1.855	0.279	-0.628
1972 Q2	0.571	0.302	2.768	-0.323	0.568	1.580
1972 Q3	0.589	0.299	3.533	-0.719	0.563	2.083
1972 Q4	0.050	0.300	0.718	0.450	0.565	0.036
1973 Q1	-0.731	0.172	0.268	-4.564	0.325	-0.196
1973 Q2	-0.266	0.584	0.400	-3.671	1.101	-0.106
1973 Q3	0.013	0.352	0.426	-2.913	0.664	0.006
1973 Q4	-0.082	7.207	0.432	-3.012	13.582	-0.035
1974 Q1	-0.805	0.457	0.224	-4.427	0.862	-0.180
1974 Q2	0.095	7.268	0.383	-2.665	13.697	0.036
1974 Q3	-0.779	0.802	0.218	-0.384	1.512	-0.170
1974 Q4	0.640	0.670	4.075	0.956	1.262	2.607
1975 Q1	0.541	0.236	4.266	-0.629	0.445	2.309

1975 Q2	-2.840	0.552	3.794	-0.538	1.628	-10.772
1975 Q3	-2.407	0.493	3.927	0.142	1.456	-9.453
1975 Q4	-2.087	0.650	2.559	0.508	1.920	-5.342
1976 Q1	-1.188	0.517	2.954	1.260	1.527	-3.509
1976 Q2	-0.524	0.368	2.982	1.928	1.087	-1.564
1976 Q3	-0.547	0.223	1.834	2.304	0.658	-1.002
1976 Q4	-0.604	3.110	1.347	2.348	9.180	-0.813
1977 Q1	-0.310	0.297	3.605	1.796	0.875	-1.119
1977 Q2	-0.278	0.262	3.562	1.549	0.774	-0.990
1977 Q3	-0.296	0.262	3.913	1.542	0.772	-1.159
1977 Q4	-0.377	0.307	4.159	1.963	0.907	-1.568
1978 Q1	-0.307	0.260	4.098	1.528	0.769	-1.258
1978 Q2	-0.330	0.252	4.154	1.423	0.743	-1.371
1978 Q3	-0.276	0.230	4.202	1.261	0.679	-1.162
1978 Q4	-0.135	0.257	4.151	1.019	0.760	-0.561
1979 Q1	0.141	0.371	3.393	0.689	1.095	0.477
1979 Q2	0.105	0.293	1.026	0.572	0.866	0.107
1979 Q3	0.156	0.304	2.070	1.084	0.897	0.323
1979 Q4	0.228	0.296	1.438	2.104	0.874	0.329
1980 Q1	0.251	0.322	1.458	2.214	0.951	0.365
1980 Q2	0.233	0.361	0.696	2.499	1.065	0.162
1980 Q3	0.275	0.296	0.944	2.702	0.873	0.259
1980 Q4	0.343	0.316	1.456	3.012	0.932	0.500
1981 Q1	0.307	0.324	1.414	2.890	0.957	0.434
1981 Q2	0.636	0.271	1.196	3.487	0.799	0.761
1981 Q3	0.790	0.223	1.610	3.172	0.658	1.271
1981 Q4	1.004	0.350	1.906	2.587	1.034	1.913
1982 Q1	0.917	0.317	2.064	2.704	0.934	1.893
1982 Q2	0.975	0.270	2.075	2.511	0.798	2.024
1982 Q3	0.817	0.376	2.021	3.152	1.110	1.651
1982 Q4	0.457	0.424	1.941	3.234	1.251	0.887
1983 Q1	0.353	0.450	1.817	2.991	1.329	0.641
1983 Q2	0.418	0.397	2.051	3.228	1.173	0.857
1983 Q3	0.940	0.356	1.942	2.750	1.049	1.825
1983 Q4	2.523	3.128	1.069	2.914	9.234	2.698
1984 Q1	2.200	0.467	1.035	2.030	1.377	2.277
1984 Q2	1.767	0.589	1.261	1.742	1.738	2.227
1984 Q3	-0.209	0.665	1.950	2.934	1.963	-0.408
1984 Q4	0.026	0.459	1.723	2.562	1.354	0.045
1985 Q1	0.540	0.416	2.065	0.079	1.227	1.114

1975 Q2	0.488	0.122	4.200	-0.737	0.231	2.049
1975 Q3	0.567	6.996	3.218	-0.569	13.185	1.824
1975 Q4	0.769	0.290	2.898	-0.335	0.546	2.228
1976 Q1	0.036	0.483	1.644	0.751	0.910	0.060
1976 Q2	-0.746	0.700	1.203	1.186	1.319	-0.897
1976 Q3	-0.680	0.803	2.187	1.537	1.513	-1.486
1976 Q4	1.240	0.604	4.267	3.982	1.139	5.291
1977 Q1	3.468	5.998	3.823	7.649	11.304	13.258
1977 Q2	3.565	1.757	4.259	7.813	3.312	15.180
1977 Q3	3.749	0.342	3.589	7.610	0.644	13.454
1977 Q4	4.042	0.724	3.338	7.430	1.364	13.493
1978 Q1	4.448	5.754	2.584	6.498	10.844	11.492
1978 Q2	3.972	4.970	2.460	4.472	9.366	9.769
1978 Q3	4.046	0.628	2.444	3.380	1.184	9.890
1978 Q4	4.661	4.921	2.268	1.317	9.273	10.568
1979 Q1	4.567	4.840	2.282	1.173	9.121	10.419
1979 Q2	3.026	0.902	3.284	0.935	1.701	9.935
1979 Q3	3.310	0.994	2.749	1.219	1.874	9.101
1979 Q4	2.931	1.019	2.955	1.593	1.921	8.662
1980 Q1	2.400	0.982	3.385	2.156	1.850	8.123
1980 Q2	2.831	0.860	3.546	0.909	1.621	10.039
1980 Q3	3.020	0.952	3.642	0.534	1.793	10.999
1980 Q4	2.170	0.559	4.242	0.377	1.053	9.206
1981 Q1	1.166	4.245	3.353	0.101	8.000	3.908
1981 Q2	0.331	4.738	1.975	0.089	8.930	0.653
1981 Q3	-0.529	5.822	0.844	1.003	10.971	-0.447
1981 Q4	1.267	4.202	3.473	0.403	7.919	4.399
1982 Q1	2.400	0.683	4.267	0.325	1.286	10.238
1982 Q2	2.081	0.511	4.014	0.126	0.962	8.352
1982 Q3	2.393	1.152	4.227	2.687	2.171	10.114
1982 Q4	2.602	1.381	4.263	3.695	2.602	11.094
1983 Q1	2.902	1.230	3.939	2.771	2.318	11.431
1983 Q2	3.149	0.991	3.534	0.606	1.868	11.126
1983 Q3	1.989	0.507	4.243	0.854	0.955	8.440
1983 Q4	1.563	0.483	4.179	2.318	0.911	6.530
1984 Q1	1.545	5.271	4.101	3.065	9.934	6.336
1984 Q2	1.022	0.699	4.122	3.529	1.318	4.212
1984 Q3	0.303	0.294	4.069	3.834	0.555	1.232
1984 Q4	0.499	7.042	4.149	3.036	13.271	2.071
1985 Q1	-0.539	7.006	3.227	2.445	13.203	-1.740

1985 Q2	0.485	0.241	1.433	-0.526	0.711	0.695
1985 Q3	0.583	0.287	1.450	-0.767	0.847	0.846
1985 Q4	0.571	0.273	1.454	-0.770	0.805	0.830
1986 Q1	0.548	0.300	1.368	-0.734	0.885	0.750
1986 Q2	0.596	0.259	1.807	-0.558	0.765	1.078
1986 Q3	0.466	0.275	1.151	-0.923	0.813	0.536
1986 Q4	-0.184	0.325	1.455	-0.823	0.960	-0.267
1987 Q1	-0.258	0.351	1.426	-0.274	1.035	-0.369
1987 Q2	-0.553	0.401	1.192	0.599	1.183	-0.659
1987 Q3	-0.720	0.599	1.435	1.735	1.767	-1.033
1987 Q4	-0.729	4.088	1.206	2.036	12.066	-0.880
1988 Q1	-0.824	4.074	1.230	1.942	12.025	-1.013
1988 Q2	-0.982	0.727	1.904	1.908	2.145	-1.870
1988 Q3	-0.811	0.663	1.331	2.267	1.957	-1.080
1988 Q4	-0.273	0.454	3.670	1.878	1.341	-1.003
1989 Q1	-0.041	0.331	4.173	1.480	0.978	-0.170
1989 Q2	0.705	0.325	3.133	1.248	0.960	2.208
1989 Q3	0.776	0.316	3.281	1.211	0.933	2.547
1989 Q4	0.754	0.274	4.199	1.073	0.808	3.166
1990 Q1	0.855	0.295	4.198	0.920	0.870	3.588
1990 Q2	0.815	0.272	3.510	0.819	0.802	2.860
1990 Q3	0.765	0.202	2.706	0.927	0.595	2.069
1990 Q4	0.859	0.295	4.171	0.940	0.870	3.583
1991 Q1	0.829	0.273	4.212	0.979	0.805	3.493
1991 Q2	0.577	0.162	2.807	0.972	0.478	1.620
1991 Q3	0.567	0.082	2.231	0.907	0.242	1.265
1991 Q4	0.628	0.078	2.092	0.888	0.231	1.314
1992 Q1	0.871	0.276	3.141	0.701	0.815	2.736
1992 Q2	0.893	0.279	3.068	0.671	0.824	2.740
1992 Q3	1.077	0.361	4.116	0.568	1.064	4.431
1992 Q4	1.333	0.375	2.523	0.328	1.107	3.364
1993 Q1	1.509	0.404	2.427	0.223	1.192	3.662
1993 Q2	1.180	0.363	2.065	0.567	1.072	2.436
1993 Q3	1.145	0.129	1.089	0.581	0.381	1.247
1993 Q4	0.260	0.159	1.071	2.037	0.468	0.278
1994 Q1	0.364	0.700	3.353	3.491	2.067	1.219
1994 Q2	-0.299	0.729	4.004	3.112	2.150	-1.199
1994 Q3	-1.160	0.628	4.102	2.745	1.854	-4.761
1994 Q4	-1.323	0.541	4.216	2.645	1.596	-5.577
1995 Q1	-1.434	0.475	4.157	2.599	1.403	-5.961

1985 Q2	-0.798	0.537	2.076	1.774	1.012	-1.657
1985 Q3	-0.559	0.212	1.770	2.413	0.400	-0.990
1985 Q4	0.029	0.373	0.475	3.033	0.702	0.014
1986 Q1	-0.462	0.653	1.615	2.650	1.231	-0.745
1986 Q2	-0.408	0.574	2.036	2.856	1.082	-0.831
1986 Q3	0.407	0.360	0.931	2.401	0.678	0.379
1986 Q4	-0.426	0.582	1.863	3.321	1.097	-0.794
1987 Q1	-0.014	0.616	1.066	2.927	1.162	-0.015
1987 Q2	-0.562	0.702	2.376	2.872	1.323	-1.336
1987 Q3	-0.586	0.767	3.121	2.553	1.446	-1.830
1987 Q4	-1.868	1.979	2.263	4.587	3.729	-4.227
1988 Q1	-1.984	1.420	2.405	4.788	2.676	-4.771
1988 Q2	-0.900	0.455	1.108	2.871	0.858	-0.997
1988 Q3	-0.278	6.646	2.269	2.205	12.524	-0.630
1988 Q4	-0.268	0.428	2.171	2.195	0.807	-0.583
1989 Q1	-0.300	0.359	2.424	2.153	0.677	-0.727
1989 Q2	-0.315	0.283	2.526	2.119	0.533	-0.796
1989 Q3	-0.308	0.321	2.483	2.134	0.605	-0.765
1989 Q4	-0.291	0.338	2.175	2.133	0.638	-0.634
1990 Q1	-1.179	0.896	0.843	1.687	1.688	-0.994
1990 Q2	-0.943	0.320	1.308	1.122	0.602	-1.234
1990 Q3	-1.457	1.434	0.541	2.661	2.702	-0.788
1990 Q4	-2.155	0.906	2.068	2.591	1.707	-4.457
1991 Q1	-1.829	0.703	3.086	2.228	1.325	-5.643
1991 Q2	-2.124	0.785	2.491	2.009	1.480	-5.292
1991 Q3	-2.129	0.859	1.903	1.916	1.618	-4.052
1991 Q4	-1.165	0.583	2.741	1.868	1.098	-3.194
1992 Q1	-1.071	0.561	2.470	1.909	1.057	-2.646
1992 Q2	-1.059	0.533	2.543	1.437	1.004	-2.692
1992 Q3	0.394	0.125	0.599	-1.228	0.235	0.236
1992 Q4	-0.805	0.483	1.249	1.296	0.911	-1.006
1993 Q1	-1.850	0.831	3.104	1.647	1.567	-5.742
1993 Q2	-1.348	0.800	2.613	1.872	1.508	-3.523
1993 Q3	-1.418	0.859	2.758	2.042	1.619	-3.910
1993 Q4	-1.410	0.805	2.777	1.820	1.517	-3.914
1994 Q1	-1.562	0.660	3.165	1.452	1.243	-4.944
1994 Q2	-1.473	0.663	3.056	2.445	1.250	-4.500
1994 Q3	-1.378	0.691	2.968	2.886	1.302	-4.091
1994 Q4	-1.573	1.098	2.791	4.117	2.069	-4.390
1995 Q1	-1.363	0.881	3.143	4.110	1.661	-4.284

1995 Q2	-0.248	0.370	3.111	1.741	1.091	-0.771
1995 Q3	-0.589	0.178	4.161	0.500	0.524	-2.450
1995 Q4	-0.637	0.299	3.832	0.513	0.883	-2.440
1996 Q1	-0.396	0.440	2.949	1.379	1.297	-1.167
1996 Q2	-0.431	0.230	1.334	1.403	0.678	-0.574
1996 Q3	0.214	0.263	1.319	3.077	0.776	0.283
1996 Q4	0.179	0.235	1.327	3.115	0.695	0.238
1997 Q1	0.014	0.321	1.327	3.108	0.949	0.018
1997 Q2	-0.211	0.128	1.316	3.021	0.378	-0.278
1997 Q3	0.283	0.460	1.325	2.245	1.359	0.375
1997 Q4	0.321	0.561	2.744	2.090	1.657	0.882
1998 Q1	0.610	0.392	3.318	1.336	1.157	2.025
1998 Q2	0.696	0.358	3.798	1.125	1.057	2.643
1998 Q3	0.927	0.241	4.101	1.072	0.711	3.801
1998 Q4	1.669	4.657	4.197	1.073	13.745	7.004
		K=	**308.261**	**1.009**	**L=**	**-487.244**

M= **-1.581**
N= **-1.347**

1995 Q2	-0.952	0.303	2.800	4.029	0.570	-2.666
1995 Q3	-1.293	0.804	3.166	4.094	1.515	-4.094
1995 Q4	-0.872	5.091	2.694	3.989	9.593	-2.348
1996 Q1	-1.023	0.713	3.144	4.028	1.344	-3.217
1996 Q2	-0.537	1.096	2.555	3.807	2.065	-1.371
1996 Q3	-0.015	0.803	2.894	3.641	1.513	-0.044
1996 Q4	-0.191	0.831	3.132	3.652	1.566	-0.600
1997 Q1	-0.092	0.723	2.649	3.563	1.362	-0.243
1997 Q2	0.110	0.636	1.760	3.278	1.199	0.194
1997 Q3	-0.016	0.306	2.042	3.432	0.577	-0.033
1997 Q4	-0.307	6.245	3.119	3.481	11.769	-0.959
1998 Q1	-0.479	6.067	3.052	3.366	11.433	-1.462
1998 Q2	-0.670	0.499	2.068	3.167	0.941	-1.385
1998 Q3	-0.964	0.186	0.933	2.804	0.350	-0.900
1998 Q4	-1.015	0.265	0.445	2.730	0.500	-0.451
		K=	**340.329**	**1.998**	**L=**	**150.899**

M= **0.443**
N= **0.198**

TABLE 20 POINTWISE AND POINT ELASTICITY ESTIMATES FOR GERMANY

LOCAL LINEAR LEAST SQUARES

SAMPLE PERIOD: 1960:I-1995:IV

IMPORT MODEL

	a1	se(a1)	f1	a2	se(a2)	a1*f1
1960 Q1	-1.443	3.535	0.612	0.695	3.991	-0.883
1960 Q2	-1.498	3.356	0.665	0.676	3.789	-0.996
1960 Q3	-1.551	3.164	0.712	0.673	3.572	-1.105
1960 Q4	-1.564	3.106	0.715	0.683	3.507	-1.119
1961 Q1	-1.574	0.370	0.434	0.721	0.418	-0.683
1961 Q2	-1.577	0.556	0.377	0.728	0.628	-0.594
1961 Q3	-1.510	0.652	0.389	0.891	0.737	-0.587
1961 Q4	-1.488	0.689	0.415	0.934	0.778	-0.617
1962 Q1	-1.355	0.271	0.921	1.216	0.306	-1.247
1962 Q2	-1.255	0.373	1.009	1.388	0.421	-1.267
1962 Q3	-1.080	0.480	1.540	1.639	0.542	-1.663
1962 Q4	-1.090	0.512	1.427	1.630	0.578	-1.555
1963 Q1	-1.420	2.681	1.709	1.174	3.027	-2.427
1963 Q2	-1.030	2.345	2.021	1.675	2.648	-2.080
1963 Q3	-0.739	0.466	2.609	1.831	0.526	-1.929
1963 Q4	-0.628	0.439	2.965	1.883	0.495	-1.862
1964 Q1	-0.473	0.487	3.204	1.957	0.550	-1.514
1964 Q2	-0.363	0.534	3.184	2.016	0.603	-1.156
1964 Q3	-0.184	0.507	3.671	2.106	0.572	-0.676
1964 Q4	-0.096	0.507	3.485	2.162	0.572	-0.334
1965 Q1	0.053	0.411	3.220	2.252	0.464	0.171
1965 Q2	0.085	0.396	3.500	2.317	0.447	0.299
1965 Q3	0.052	0.415	3.696	2.318	0.468	0.193
1965 Q4	0.010	0.432	3.577	2.311	0.488	0.034
1966 Q1	-0.033	0.425	3.695	2.312	0.480	-0.122
1966 Q2	-0.080	0.441	3.460	2.299	0.498	-0.275
1966 Q3	-0.126	0.462	2.840	2.285	0.522	-0.358
1966 Q4	-0.077	0.484	2.338	2.289	0.546	-0.180
1967 Q1	-0.071	0.516	1.872	2.289	0.583	-0.133
1967 Q2	-0.059	0.542	1.722	2.290	0.612	-0.101
1967 Q3	-0.173	0.499	1.909	2.269	0.564	-0.330
1967 Q4	-0.244	0.515	1.905	2.247	0.581	-0.464
1968 Q1	-0.203	0.587	1.816	2.256	0.663	-0.369
1968 Q2	-0.529	0.682	1.887	2.140	0.770	-0.999
1968 Q3	-0.652	0.786	2.333	2.093	0.888	-1.521

EXPORT MODEL

	b1	se(b1)	g1	b2	se(b2)	b1*g1
1960 Q1	1.132	0.295	3.017	0.387	0.222	3.417
1960 Q2	1.159	0.309	2.671	0.379	0.233	3.096
1960 Q3	1.059	0.299	2.563	0.397	0.225	2.714
1960 Q4	1.174	0.308	2.333	0.375	0.232	2.737
1961 Q1	1.063	0.284	2.234	0.395	0.214	2.373
1961 Q2	-0.325	0.438	2.927	0.600	0.330	-0.950
1961 Q3	-1.246	0.359	2.680	0.705	0.270	-3.338
1961 Q4	-1.783	0.368	2.636	0.749	0.278	-4.700
1962 Q1	-2.103	0.450	2.734	0.771	0.339	-5.751
1962 Q2	-2.211	0.106	2.269	0.776	0.080	-5.018
1962 Q3	-2.423	2.808	2.170	0.793	2.117	-5.258
1962 Q4	-2.449	0.113	2.219	0.795	0.085	-5.434
1963 Q1	-2.548	0.364	2.516	0.801	0.274	-6.411
1963 Q2	-2.902	0.501	2.694	0.836	0.378	-7.819
1963 Q3	-3.039	0.517	2.514	0.866	0.390	-7.639
1963 Q4	-3.106	0.467	3.117	0.912	0.352	-9.683
1964 Q1	-2.956	0.573	3.130	0.984	0.432	-9.252
1964 Q2	-2.902	0.634	3.109	1.015	0.478	-9.020
1964 Q3	-2.870	0.656	3.091	1.043	0.495	-8.871
1964 Q4	-2.561	0.623	3.180	1.131	0.470	-8.142
1965 Q1	-2.237	0.684	3.067	1.229	0.516	-6.860
1965 Q2	-2.172	0.663	3.092	1.269	0.500	-6.717
1965 Q3	-2.121	0.623	3.130	1.317	0.470	-6.639
1965 Q4	-2.062	0.624	3.087	1.401	0.471	-6.366
1966 Q1	-2.038	0.638	3.165	1.495	0.481	-6.451
1966 Q2	-1.941	0.680	3.182	1.576	0.513	-6.177
1966 Q3	-1.687	0.696	3.188	1.645	0.524	-5.376
1966 Q4	-1.511	0.747	3.092	1.680	0.563	-4.671
1967 Q1	-1.537	0.729	3.138	1.674	0.550	-4.824
1967 Q2	-1.516	0.794	2.732	1.680	0.598	-4.143
1967 Q3	-1.191	0.823	2.980	1.725	0.621	-3.550
1967 Q4	-0.596	0.731	3.136	1.810	0.551	-1.870
1968 Q1	-0.472	0.527	3.152	1.832	0.397	-1.487
1968 Q2	-0.186	0.782	2.979	1.879	0.590	-0.555
1968 Q3	0.200	0.712	2.908	1.927	0.537	0.583

1968 Q4	-0.713	0.715	2.323	2.094	0.807	-1.656
1969 Q1	-0.665	0.698	2.037	2.086	0.789	-1.355
1969 Q2	-0.794	0.706	1.757	2.067	0.797	-1.395
1969 Q3	-0.819	0.904	1.800	2.079	1.021	-1.474
1969 Q4	-0.714	0.752	2.361	2.050	0.849	-1.686
1970 Q1	-0.612	0.791	2.306	2.080	0.893	-1.412
1970 Q2	-0.499	0.555	1.911	1.988	0.626	-0.953
1970 Q3	-0.460	0.511	2.594	1.962	0.577	-1.193
1970 Q4	-0.402	0.464	2.607	1.966	0.524	-1.049
1971 Q1	-0.437	0.489	2.552	1.953	0.552	-1.116
1971 Q2	-0.373	0.428	2.528	1.947	0.484	-0.942
1971 Q3	-0.307	0.352	2.685	1.891	0.397	-0.824
1971 Q4	-0.218	0.269	2.494	1.817	0.303	-0.544
1972 Q1	-0.125	0.194	1.673	1.762	0.219	-0.210
1972 Q2	-0.103	0.204	1.597	1.762	0.230	-0.164
1972 Q3	0.047	0.066	1.188	1.725	0.075	0.056
1972 Q4	-0.018	0.270	1.400	1.780	0.305	-0.026
1973 Q1	-0.048	0.323	1.528	1.812	0.365	-0.073
1973 Q2	0.002	0.310	1.360	1.790	0.350	0.003
1973 Q3	0.169	0.175	0.773	1.735	0.197	0.131
1973 Q4	-0.129	0.352	2.724	1.872	0.397	-0.351
1974 Q1	-0.389	0.413	2.371	2.023	0.467	-0.922
1974 Q2	-0.411	0.426	2.329	2.031	0.481	-0.956
1974 Q3	-0.452	0.473	1.791	2.064	0.534	-0.810
1974 Q4	-0.504	0.484	2.180	2.052	0.546	-1.099
1975 Q1	-0.447	0.450	2.379	2.019	0.508	-1.062
1975 Q2	-0.347	0.416	1.637	1.983	0.469	-0.568
1975 Q3	-0.339	0.410	1.671	1.983	0.463	-0.567
1975 Q4	-0.374	0.413	2.326	2.010	0.466	-0.869
1976 Q1	-0.315	0.391	2.023	1.999	0.442	-0.638
1976 Q2	-0.305	0.377	2.040	2.004	0.426	-0.622
1976 Q3	-0.318	0.387	2.133	2.006	0.437	-0.678
1976 Q4	-0.294	0.360	1.946	2.020	0.406	-0.571
1977 Q1	-0.336	0.361	2.374	2.038	0.408	-0.798
1977 Q2	-0.322	0.358	2.393	2.030	0.405	-0.771
1977 Q3	-0.280	0.360	1.671	2.014	0.406	-0.468
1977 Q4	-0.213	0.392	1.483	1.965	0.442	-0.316
1978 Q1	-0.180	0.425	2.552	1.968	0.480	-0.459
1978 Q2	-0.176	0.430	2.594	1.968	0.485	-0.456
1978 Q3	-0.138	0.473	2.606	1.933	0.534	-0.360

1968 Q4	0.560	0.644	2.760	1.958	0.485	1.545
1969 Q1	0.670	0.506	2.816	1.965	0.382	1.886
1969 Q2	0.704	0.272	2.784	1.933	0.205	1.960
1969 Q3	0.686	2.683	2.842	1.895	2.022	1.950
1969 Q4	0.729	0.444	1.896	1.883	0.334	1.382
1970 Q1	0.717	0.418	1.814	1.865	0.315	1.301
1970 Q2	0.700	0.340	1.672	1.839	0.257	1.170
1970 Q3	0.666	2.742	2.068	1.822	2.067	1.378
1970 Q4	0.690	0.242	1.958	1.842	0.182	1.351
1971 Q1	0.660	0.152	1.801	1.809	0.115	1.189
1971 Q2	0.631	0.054	1.764	1.784	0.040	1.113
1971 Q3	0.609	0.089	1.505	1.756	0.067	0.916
1971 Q4	0.614	0.426	0.899	1.732	0.321	0.552
1972 Q1	0.434	0.585	0.391	1.583	0.441	0.170
1972 Q2	0.375	0.475	0.394	1.534	0.358	0.148
1972 Q3	0.393	0.420	0.391	1.547	0.317	0.153
1972 Q4	0.423	0.289	0.392	1.587	0.218	0.166
1973 Q1	-0.346	0.237	0.151	1.073	0.179	-0.052
1973 Q2	-0.683	0.738	0.175	1.022	0.556	-0.119
1973 Q3	-0.895	0.596	1.056	1.602	0.449	-0.945
1973 Q4	-0.806	0.717	1.015	1.705	0.540	-0.818
1974 Q1	-0.874	0.672	0.839	1.621	0.507	-0.733
1974 Q2	-0.823	0.612	1.249	1.659	0.462	-1.028
1974 Q3	-0.947	0.509	1.179	1.534	0.384	-1.117
1974 Q4	-0.882	0.388	1.341	1.441	0.293	-1.183
1975 Q1	-0.608	0.397	1.301	1.429	0.299	-0.791
1975 Q2	-0.645	0.245	1.319	1.397	0.185	-0.851
1975 Q3	-0.895	3.063	1.166	1.356	2.309	-1.043
1975 Q4	-0.945	2.933	1.087	1.348	2.211	-1.027
1976 Q1	-0.857	0.410	1.340	1.451	0.309	-1.148
1976 Q2	-0.908	0.451	1.328	1.485	0.340	-1.205
1976 Q3	-0.827	0.514	1.340	1.557	0.387	-1.108
1976 Q4	-0.532	0.559	1.304	1.713	0.421	-0.694
1977 Q1	-0.440	0.585	1.291	1.778	0.441	-0.568
1977 Q2	-0.338	0.560	1.299	1.795	0.422	-0.439
1977 Q3	-0.219	0.533	1.189	1.822	0.401	-0.260
1977 Q4	-0.011	0.497	1.021	1.872	0.374	-0.011
1978 Q1	0.349	0.335	0.856	1.980	0.252	0.299
1978 Q2	0.424	0.272	0.788	1.939	0.205	0.334
1978 Q3	0.590	2.557	0.722	1.952	1.927	0.426

1978 Q4	-0.109	0.545	2.560	1.891	0.615	-0.278
1979 Q1	-0.151	0.467	1.914	1.891	0.527	-0.288
1979 Q2	-0.183	0.377	2.161	1.809	0.426	-0.395
1979 Q3	-0.199	0.338	2.363	1.818	0.381	-0.470
1979 Q4	-0.212	0.310	2.228	1.812	0.350	-0.473
1980 Q1	-0.286	0.213	2.873	1.868	0.241	-0.822
1980 Q2	-0.318	0.224	3.239	1.924	0.253	-1.029
1980 Q3	-0.305	0.247	2.956	1.927	0.279	-0.903
1980 Q4	-0.366	0.249	3.494	1.990	0.281	-1.280
1981 Q1	-0.386	0.140	1.665	2.010	0.159	-0.643
1981 Q2	-0.388	0.129	1.638	2.021	0.145	-0.636
1981 Q3	-0.435	0.024	1.081	2.002	0.027	-0.471
1981 Q4	-0.379	0.192	1.994	2.001	0.217	-0.756
1982 Q1	-0.379	0.184	1.968	1.997	0.207	-0.745
1982 Q2	-0.362	0.236	3.543	1.978	0.266	-1.284
1982 Q3	-0.369	0.278	3.682	2.008	0.314	-1.359
1982 Q4	-0.354	0.278	3.569	1.996	0.314	-1.263
1983 Q1	-0.310	0.237	3.112	1.924	0.267	-0.964
1983 Q2	-0.251	0.247	1.799	1.837	0.278	-0.452
1983 Q3	-0.287	0.224	2.698	1.882	0.253	-0.773
1983 Q4	-0.304	0.194	3.313	1.850	0.219	-1.009
1984 Q1	-0.342	0.152	3.688	1.879	0.172	-1.261
1984 Q2	-0.326	0.186	3.560	1.889	0.210	-1.159
1984 Q3	-0.347	0.080	3.189	1.885	0.090	-1.108
1984 Q4	-0.347	0.019	3.051	1.889	0.022	-1.059
1985 Q1	-0.388	0.151	1.664	1.912	0.171	-0.646
1985 Q2	-0.352	1.915	2.626	1.893	2.162	-0.924
1985 Q3	-0.327	0.084	3.687	1.885	0.095	-1.205
1985 Q4	-0.252	0.283	2.315	1.817	0.320	-0.584
1986 Q1	-0.205	0.357	2.317	1.802	0.403	-0.475
1986 Q2	-0.149	0.442	1.773	1.835	0.499	-0.265
1986 Q3	-0.106	0.459	2.537	1.861	0.519	-0.268
1986 Q4	-0.086	0.445	2.532	1.883	0.503	-0.218
1987 Q1	-0.075	0.500	2.692	1.845	0.565	-0.202
1987 Q2	-0.031	0.405	2.704	1.891	0.457	-0.084
1987 Q3	-0.023	0.375	2.700	1.913	0.424	-0.061
1987 Q4	-0.005	0.325	2.674	1.941	0.367	-0.014
1988 Q1	-0.005	0.272	2.525	1.940	0.307	-0.013
1988 Q2	0.010	0.311	2.719	1.968	0.351	0.028
1988 Q3	0.029	0.362	2.678	2.012	0.409	0.078

1978 Q4	0.650	0.228	0.792	1.982	0.172	0.515
1979 Q1	0.636	2.707	1.005	2.038	2.040	0.639
1979 Q2	0.619	0.393	1.122	2.029	0.296	0.695
1979 Q3	0.621	0.417	1.474	2.034	0.315	0.915
1979 Q4	0.619	0.495	1.503	2.034	0.373	0.931
1980 Q1	0.586	0.613	1.585	2.062	0.462	0.929
1980 Q2	0.635	0.191	1.540	2.057	0.144	0.977
1980 Q3	0.555	3.323	1.594	2.059	2.505	0.884
1980 Q4	0.637	3.041	1.526	2.066	2.292	0.972
1981 Q1	0.622	0.306	1.159	2.042	0.231	0.722
1981 Q2	0.619	0.446	0.735	1.943	0.336	0.455
1981 Q3	0.400	0.484	0.798	1.855	0.365	0.319
1981 Q4	0.570	0.455	0.720	1.917	0.343	0.411
1982 Q1	0.451	0.441	0.771	1.875	0.332	0.348
1982 Q2	0.319	0.470	0.859	1.871	0.355	0.274
1982 Q3	-0.034	0.530	1.026	1.841	0.399	-0.035
1982 Q4	-0.126	0.551	1.127	1.839	0.415	-0.142
1983 Q1	0.012	0.521	1.000	1.845	0.393	0.012
1983 Q2	-0.153	0.561	1.167	1.838	0.423	-0.179
1983 Q3	-0.249	0.594	1.293	1.857	0.448	-0.321
1983 Q4	-0.254	0.557	1.303	1.874	0.420	-0.331
1984 Q1	-0.234	0.464	1.304	1.875	0.350	-0.305
1984 Q2	-0.224	0.420	1.304	1.868	0.316	-0.292
1984 Q3	-0.281	0.530	1.237	2.019	0.400	-0.348
1984 Q4	-0.165	0.643	0.947	2.098	0.485	-0.156
1985 Q1	0.338	0.483	0.347	2.108	0.364	0.117
1985 Q2	0.033	4.273	0.742	1.978	3.221	0.025
1985 Q3	-0.029	3.556	1.177	1.716	2.681	-0.034
1985 Q4	-0.043	3.030	1.305	1.636	2.284	-0.056
1986 Q1	0.020	2.919	1.065	1.658	2.201	0.021
1986 Q2	0.211	2.847	0.906	1.684	2.146	0.191
1986 Q3	0.385	0.343	0.812	1.720	0.258	0.313
1986 Q4	0.452	0.463	0.768	1.765	0.349	0.347
1987 Q1	0.469	0.636	0.857	1.943	0.480	0.402
1987 Q2	0.279	0.666	1.297	1.952	0.502	0.362
1987 Q3	0.302	0.602	1.183	1.937	0.454	0.357
1987 Q4	-0.117	0.651	1.586	1.915	0.491	-0.186
1988 Q1	-0.153	0.650	1.513	1.961	0.490	-0.232
1988 Q2	-0.162	0.565	1.554	1.955	0.426	-0.251
1988 Q3	-0.124	0.349	1.477	1.841	0.263	-0.183

1988 Q4	0.028	0.389	2.684	2.018	0.439	0.076
1989 Q1	-0.006	0.453	2.594	2.023	0.511	-0.016
1989 Q2	-0.038	0.503	2.165	2.015	0.568	-0.082
1989 Q3	-0.012	0.440	2.605	2.031	0.497	-0.030
1989 Q4	0.008	0.391	2.542	2.037	0.442	0.020
1990 Q1	0.056	0.476	2.682	1.673	0.538	0.150
1990 Q2	0.370	0.535	2.200	1.610	0.604	0.813
1990 Q3	0.364	0.536	2.522	1.525	0.605	0.918
1990 Q4	0.223	0.506	2.716	1.421	0.572	0.605
1991 Q1	0.066	0.121	2.688	0.980	0.136	0.177
1991 Q2	-0.016	3.211	2.665	0.948	3.625	-0.044
1991 Q3	0.038	0.114	2.697	0.975	0.129	0.102
1991 Q4	0.304	0.127	1.444	1.129	0.143	0.439
1992 Q1	0.351	2.438	0.902	1.276	2.752	0.316
1992 Q2	0.360	0.088	0.723	1.280	0.100	0.260
1992 Q3	0.404	0.166	0.336	1.401	0.188	0.136
1992 Q4	0.425	0.192	0.304	1.451	0.217	0.129
1993 Q1	0.586	0.230	0.986	1.812	0.259	0.577
1993 Q2	0.684	0.162	1.803	2.220	0.183	1.233
1993 Q3	0.681	0.205	1.814	2.434	0.232	1.236
1993 Q4	0.684	0.175	1.531	2.720	0.198	1.046
1994 Q1	0.681	0.241	1.729	2.691	0.272	1.177
1994 Q2	0.679	0.237	1.795	2.555	0.267	1.219
1994 Q3	0.679	0.240	1.591	2.819	0.271	1.081
1994 Q4	0.677	0.155	1.702	2.822	0.176	1.152
1995 Q1	0.636	0.122	1.360	2.538	0.138	0.864
1995 Q2	0.674	2.432	1.809	2.786	2.746	1.220
1995 Q3	0.677	0.153	1.720	2.821	0.173	1.164
1995 Q4	0.675	0.095	1.810	2.783	0.107	1.221
		K=	**314.130**	**1.890**	**L=**	**-66.246**
					M=	**-0.211**
					N=	**-0.250**

1988 Q4	-0.218	0.312	1.593	1.819	0.235	-0.347
1989 Q1	-0.252	0.245	1.581	1.704	0.185	-0.398
1989 Q2	-0.164	0.181	1.322	1.630	0.136	-0.217
1989 Q3	-0.122	0.220	1.232	1.623	0.166	-0.151
1989 Q4	-0.244	0.157	1.518	1.682	0.118	-0.370
1990 Q1	-0.183	0.233	1.546	1.960	0.176	-0.283
1990 Q2	-0.186	0.193	1.556	1.957	0.145	-0.290
1990 Q3	-0.075	0.281	1.202	2.244	0.212	-0.090
1990 Q4	0.160	0.395	0.814	2.668	0.298	0.130
1991 Q1	0.133	0.389	0.864	2.611	0.293	0.115
1991 Q2	-0.177	0.250	1.522	1.972	0.188	-0.270
1991 Q3	-0.199	0.236	1.563	1.912	0.178	-0.311
1991 Q4	-0.088	0.312	1.221	2.208	0.235	-0.107
1992 Q1	-0.040	0.329	1.105	2.305	0.248	-0.044
1992 Q2	-0.037	0.338	1.095	2.305	0.255	-0.040
1992 Q3	0.182	0.334	0.760	2.705	0.252	0.138
1992 Q4	-0.060	0.362	1.144	2.239	0.273	-0.068
1993 Q1	-0.167	0.318	1.457	1.979	0.240	-0.243
1993 Q2	-0.122	0.366	1.279	2.098	0.276	-0.156
1993 Q3	-0.175	0.347	1.519	1.951	0.261	-0.265
1993 Q4	-0.184	0.321	1.561	1.929	0.242	-0.287
1994 Q1	-0.160	0.295	1.415	2.011	0.223	-0.226
1994 Q2	-0.110	0.270	1.263	2.164	0.204	-0.139
1994 Q3	0.036	0.311	0.954	2.473	0.234	0.035
1994 Q4	0.088	0.043	0.927	2.570	0.033	0.081
1995 Q1	0.167	2.565	0.798	2.707	1.933	0.133
1995 Q2	0.417	0.132	0.443	3.085	0.100	0.184
1995 Q3	0.250	2.814	0.611	2.901	2.121	0.153
1995 Q4	0.240	2.808	0.623	2.890	2.117	0.149
		K=	**232.302**	**1.713**	**L=**	**-137.905**
					M=	**-0.594**
					N=	**-0.315**

TABLE 21 POINTWISE AND POINT ELASTICITY ESTIMATES FOR JAPAN

LOCAL LINEAR LEAST SQUARES

SAMPLE PERIOD: 1960:I-1998:IV

IMPORT MODEL

	a1	se(a1)	f1	a2	se(a2)	a1*f1
1960Q1	5.126	0.578	0.190	5.302	0.468	0.971
1960Q2	5.152	4.864	0.255	5.322	3.939	1.312
1960Q3	5.010	0.347	0.330	5.245	0.281	1.655
1960Q4	4.751	0.612	0.362	5.089	0.496	1.718
1961Q1	4.352	0.704	0.348	4.839	0.570	1.516
1961Q2	4.355	0.572	0.349	4.842	0.463	1.521
1961Q3	4.122	0.329	0.343	4.687	0.267	1.415
1961Q4	2.719	0.574	0.309	3.460	0.465	0.839
1962Q1	2.171	0.634	0.270	2.939	0.513	0.586
1962Q2	1.751	0.506	0.333	2.517	0.410	0.583
1962Q3	1.489	0.324	0.521	2.249	0.263	0.776
1962Q4	1.267	0.324	0.691	2.030	0.262	0.876
1963Q1	1.111	0.224	0.913	1.918	0.181	1.014
1963Q2	0.954	0.477	0.998	1.766	0.386	0.952
1963Q3	0.801	0.524	1.234	1.654	0.425	0.988
1963Q4	0.840	0.589	0.994	1.627	0.477	0.835
1964Q1	0.838	0.538	0.803	1.591	0.436	0.673
1964Q2	0.851	0.427	1.030	1.546	0.346	0.877
1964Q3	0.880	0.476	1.377	1.528	0.385	1.211
1964Q4	0.868	0.580	1.558	1.510	0.470	1.353
1965Q1	0.827	0.272	1.350	1.489	0.221	1.117
1965Q2	0.617	0.502	1.576	1.433	0.407	0.972
1965Q3	0.422	0.523	1.640	1.406	0.423	0.692
1965Q4	0.386	0.654	1.768	1.451	0.530	0.682
1966Q1	0.537	0.634	1.782	1.627	0.513	0.957
1966Q2	0.153	0.684	1.809	1.577	0.554	0.277
1966Q3	-0.254	0.679	1.801	1.437	0.550	-0.458
1966Q4	-0.505	0.719	1.747	1.351	0.582	-0.882
1967Q1	-0.454	0.725	1.672	1.390	0.587	-0.759
1967Q2	-0.027	0.808	1.447	1.540	0.654	-0.039
1967Q3	-0.003	3.798	1.570	1.461	3.075	-0.005
1967Q4	-0.219	0.226	1.431	1.256	0.183	-0.313
1968Q1	-0.311	0.707	1.094	1.126	0.573	-0.340
1968Q2	-0.173	0.658	1.073	1.176	0.533	-0.185
1968Q3	0.255	0.267	1.186	1.418	0 216	0.303

EXPORT MODEL

	b1	se(b1)	g1	b2	se(b2)	b1*g1
1960Q1	-0.353	0.606	1.295	1.999	0.761	-0.457
1960Q2	-0.379	0.552	1.330	1.981	0.693	-0.503
1960Q3	-0.323	0.512	1.433	2.014	0.642	-0.463
1960Q4	-0.381	0.389	1.481	1.974	0.489	-0.565
1961Q1	-0.205	5.208	1.784	2.070	6.536	-0.366
1961Q2	0.135	0.320	1.817	2.246	0.402	0.246
1961Q3	0.222	0.572	1.837	2.262	0.718	0.408
1961Q4	0.411	0.705	1.851	2.417	0.885	0.761
1962Q1	0.691	0.718	1.865	2.493	0.901	1.288
1962Q2	0.808	0.787	1.851	2.528	0.987	1.497
1962Q3	1.188	0.768	1.903	2.671	0.963	2.261
1962Q4	1.288	0.736	1.916	2.710	0.923	2.467
1963Q1	1.566	0.712	2.057	2.824	0.894	3.220
1963Q2	1.262	0.480	1.913	3.018	0.603	2.413
1963Q3	0.910	0.632	2.002	3.062	0.793	1.821
1963Q4	0.871	0.939	2.098	3.245	1.178	1.828
1964Q1	1.048	1.201	2.040	3.527	1.508	2.137
1964Q2	1.511	1.061	2.038	3.790	1.331	3.080
1964Q3	2.118	0.985	2.039	4.135	1.236	4.319
1964Q4	0.883	0.963	2.190	3.489	1.209	1.935
1965Q1	-0.637	0.819	2.399	2.631	1.028	-1.528
1965Q2	-0.592	0.806	2.473	2.576	1.012	-1.464
1965Q3	-0.465	0.876	2.405	2.534	1.100	-1.117
1965Q4	-0.481	0.806	2.605	2.466	1.011	-1.253
1966Q1	-0.467	0.783	3.062	2.351	0.983	-1.430
1966Q2	-0.524	0.702	2.761	2.401	0.881	-1.446
1966Q3	-0.609	0.786	3.050	2.580	0.987	-1.857
1966Q4	-0.631	0.817	3.139	2.669	1.026	-1.981
1967Q1	-0.632	0.760	2.892	2.645	0.954	-1.826
1967Q2	-0.650	0.513	2.349	2.637	0.644	-1.526
1967Q3	-0.673	0.421	2.195	2.699	0.528	-1.477
1967Q4	-0.654	0.721	2.184	2.843	0.905	-1.428
1968Q1	-0.627	0.949	3.512	2.884	1.191	-2.201
1968Q2	-0.616	0.934	3.563	2.916	1.172	-2.196
1968Q3	-0.542	1.050	3.520	3.066	1.318	-1.907

1968Q4	0.619	0.412	1.355	1.656	0.334	0.839
1969Q1	0.611	0.544	1.342	1.653	0.441	0.819
1969Q2	0.582	0.505	1.349	1.640	0.409	0.784
1969Q3	0.556	0.562	1.289	1.618	0.455	0.716
1969Q4	0.514	0.528	1.325	1.598	0.428	0.680
1970Q1	0.507	0.536	1.291	1.602	0.434	0.655
1970Q2	0.526	0.598	1.320	1.626	0.484	0.694
1970Q3	0.463	0.689	1.320	1.698	0.558	0.611
1970Q4	0.417	0.588	1.028	1.749	0.476	0.429
1971Q1	0.423	0.597	0.967	1.777	0.483	0.409
1971Q2	0.434	0.662	1.024	1.829	0.536	0.444
1971Q3	0.495	0.707	0.820	1.960	0.573	0.406
1971Q4	0.952	0.429	0.452	2.516	0.347	0.430
1972Q1	0.975	3.646	0.675	2.730	2.952	0.658
1972Q2	0.688	0.209	0.677	2.571	0.169	0.466
1972Q3	0.304	0.594	0.668	2.200	0.481	0.203
1972Q4	0.121	0.725	0.680	1.851	0.587	0.082
1973Q1	0.167	0.721	0.635	1.654	0.584	0.106
1973Q2	0.217	0.715	0.606	1.600	0.579	0.131
1973Q3	0.046	0.728	0.679	1.607	0.590	0.031
1973Q4	-0.119	0.789	0.477	1.571	0.639	-0.057
1974Q1	0.033	0.519	1.409	1.125	0.420	0.046
1974Q2	-0.173	0.230	1.794	0.971	0.186	-0.310
1974Q3	-0.179	0.293	1.786	0.936	0.237	-0.320
1974Q4	-0.209	0.293	1.734	0.969	0.238	-0.363
1975Q1	-0.265	0.386	1.300	1.029	0.312	-0.345
1975Q2	-0.161	0.335	1.767	0.900	0.271	-0.285
1975Q3	-0.079	0.306	1.802	0.861	0.247	-0.142
1975Q4	-0.076	0.321	1.813	0.851	0.260	-0.138
1976Q1	-0.067	0.324	1.812	0.843	0.263	-0.121
1976Q2	-0.111	0.290	1.591	0.799	0.234	-0.177
1976Q3	-0.130	0.294	1.339	0.781	0.238	-0.174
1976Q4	-0.131	0.295	1.257	0.776	0.239	-0.165
1977Q1	-0.151	0.300	1.096	0.754	0.243	-0.165
1977Q2	-0.129	0.314	1.161	0.749	0.254	-0.150
1977Q3	-0.229	0.328	1.362	0.651	0.265	-0.312
1977Q4	-0.140	0.482	0.698	0.724	0.390	-0.098
1978Q1	0.083	0.511	0.641	0.543	0.414	0.053
1978Q2	0.161	0.509	0.456	0.635	0.412	0.073
1978Q3	0.176	0.337	0.149	0.683	0.273	0.026

1968Q4	-0.543	0.992	3.566	3.189	1.245	-1.937
1969Q1	-0.726	0.932	3.578	3.265	1.169	-2.599
1969Q2	-1.189	0.788	3.544	3.243	0.989	-4.214
1969Q3	-1.359	0.412	3.417	3.232	0.516	-4.642
1969Q4	-1.397	0.790	3.573	3.245	0.991	-4.993
1970Q1	-1.422	0.736	3.578	3.243	0.923	-5.088
1970Q2	-1.426	0.679	3.565	3.282	0.852	-5.083
1970Q3	-1.402	0.631	3.538	3.309	0.792	-4.961
1970Q4	-1.452	0.529	3.504	3.249	0.664	-5.088
1971Q1	-1.352	0.860	3.470	3.336	1.080	-4.693
1971Q2	-1.326	0.838	3.509	3.359	1.052	-4.653
1971Q3	-1.337	0.800	3.570	3.345	1.003	-4.772
1971Q4	-1.407	0.857	3.454	3.228	1.076	-4.858
1972Q1	-1.625	0.830	3.559	2.858	1.042	-5.784
1972Q2	-1.799	0.733	3.532	2.386	0.920	-6.353
1972Q3	-1.806	0.616	3.271	2.285	0.773	-5.906
1972Q4	-1.847	0.490	3.084	2.149	0.615	-5.696
1973Q1	-1.907	0.629	3.435	2.478	0.790	-6.552
1973Q2	-1.937	0.731	3.511	2.717	0.917	-6.803
1973Q3	-1.933	0.796	3.566	2.782	0.999	-6.894
1973Q4	-1.916	0.817	3.317	2.832	1.025	-6.355
1974Q1	-1.823	0.300	2.377	2.749	0.376	-4.332
1974Q2	-1.873	0.534	2.458	2.767	0.670	-4.602
1974Q3	-1.918	0.675	3.041	2.695	0.847	-5.833
1974Q4	-1.867	0.565	3.352	2.234	0.709	-6.258
1975Q1	-1.850	0.961	3.344	2.338	1.206	-6.188
1975Q2	-1.864	1.002	2.879	2.432	1.257	-5.367
1975Q3	-1.850	0.950	3.392	2.321	1.192	-6.277
1975Q4	-1.852	0.822	3.237	2.230	1.031	-5.993
1976Q1	-1.917	0.695	2.671	2.459	0.873	-5.120
1976Q2	-1.936	0.769	2.874	2.719	0.966	-5.564
1976Q3	-1.858	0.778	3.170	2.761	0.976	-5.889
1976Q4	-1.661	0.733	3.112	2.733	0.920	-5.167
1977Q1	-1.397	0.657	2.695	2.746	0.824	-3.765
1977Q2	-1.401	0.677	3.103	2.796	0.850	-4.346
1977Q3	-1.489	0.708	3.356	2.831	0.889	-4.996
1977Q4	-1.664	0.796	3.145	2.967	0.999	-5.234
1978Q1	-1.486	0.738	3.414	2.987	0.926	-5.072
1978Q2	-1.709	1.184	3.350	3.520	1.486	-5.725
1978Q3	-1.622	1.392	3.125	3.718	1.747	-5.070

1978Q4	0.150	0.469	0.142	0.690	0.380	0.021
1979Q1	0.429	0.610	0.322	1.249	0.494	0.138
1979Q2	0.063	0.542	0.468	0.928	0.439	0.030
1979Q3	-0.215	0.343	1.334	0.607	0.278	-0.287
1979Q4	-0.107	0.290	1.558	0.791	0.235	-0.166
1980Q1	-0.120	0.411	1.219	0.874	0.333	-0.146
1980Q2	-0.107	0.400	1.317	0.865	0.324	-0.141
1980Q3	-0.016	0.285	1.804	0.815	0.231	-0.028
1980Q4	-0.090	0.272	1.618	0.796	0.220	-0.146
1981Q1	-0.099	0.262	1.505	0.792	0.213	-0.149
1981Q2	0.001	0.238	1.806	0.817	0.193	0.001
1981Q3	0.032	0.205	1.744	0.800	0.166	0.055
1981Q4	-0.051	0.224	1.726	0.809	0.182	-0.088
1982Q1	-0.064	0.213	1.676	0.807	0.172	-0.107
1982Q2	-0.010	0.131	1.762	0.819	0.106	-0.018
1982Q3	0.105	2.853	1.659	0.771	2.311	0.174
1982Q4	0.112	2.896	1.693	0.743	2.345	0.189
1983Q1	-0.094	0.203	1.190	0.772	0.165	-0.112
1983Q2	-0.087	0.260	1.145	0.758	0.211	-0.099
1983Q3	-0.106	0.211	1.077	0.724	0.171	-0.115
1983Q4	-0.058	0.255	1.272	0.709	0.207	-0.074
1984Q1	-0.055	0.248	1.355	0.671	0.201	-0.075
1984Q2	-0.031	0.254	1.324	0.675	0.205	-0.041
1984Q3	-0.042	0.181	1.225	0.662	0.147	-0.052
1984Q4	-0.021	0.192	1.363	0.655	0.156	-0.029
1985Q1	-0.019	0.088	1.289	0.651	0.071	-0.025
1985Q2	0.082	3.497	1.355	0.722	2.832	0.111
1985Q3	0.070	3.892	0.922	0.824	3.152	0.064
1985Q4	-0.364	0.341	0.679	1.053	0.276	-0.247
1986Q1	-0.196	6.702	0.200	1.109	5.427	-0.039
1986Q2	-0.075	0.277	0.541	2.022	0.224	-0.041
1986Q3	-0.246	3.499	0.790	2.217	2.833	-0.194
1986Q4	-0.249	3.284	0.754	2.111	2.660	-0.188
1987Q1	-0.218	0.125	0.708	2.048	0.101	-0.154
1987Q2	-0.169	0.217	0.713	1.983	0.176	-0.120
1987Q3	-0.056	0.429	0.652	1.860	0.348	-0.036
1987Q4	0.033	0.465	0.711	1.748	0.376	0.024
1988Q1	0.048	0.525	0.774	1.649	0.425	0.037
1988Q2	-0.022	0.594	0.749	1.649	0.481	-0.017
1988Q3	0.087	0.506	0.714	1.672	0.410	0.062

1978Q4	-1.622	1.169	3.528	3.712	1.467	-5.723
1979Q1	-1.218	0.863	3.144	3.636	1.083	-3.830
1979Q2	-0.551	0.639	3.397	3.430	0.802	-1.871
1979Q3	-0.006	0.510	2.639	3.178	0.640	-0.016
1979Q4	1.114	0.331	0.328	2.649	0.415	0.366
1980Q1	1.487	0.060	0.187	2.444	0.075	0.278
1980Q2	0.907	0.326	0.504	2.794	0.409	0.457
1980Q3	0.864	0.240	0.529	2.847	0.302	0.457
1980Q4	0.090	0.450	1.989	3.175	0.564	0.180
1981Q1	-0.648	0.662	3.422	3.473	0.831	-2.218
1981Q2	-0.693	0.685	3.436	3.486	0.859	-2.381
1981Q3	-0.798	0.731	3.366	3.511	0.917	-2.684
1981Q4	-0.771	0.717	3.401	3.508	0.900	-2.624
1982Q1	-0.602	0.631	3.308	3.459	0.792	-1.991
1982Q2	-0.652	0.629	3.269	3.468	0.789	-2.132
1982Q3	-0.457	0.508	2.421	3.262	0.638	-1.106
1982Q4	-0.590	0.518	2.387	3.176	0.650	-1.409
1983Q1	-0.509	0.527	2.556	3.285	0.662	-1.301
1983Q2	-0.386	0.546	2.802	3.372	0.685	-1.083
1983Q3	-0.217	0.545	2.933	3.295	0.683	-0.637
1983Q4	-0.443	0.644	3.359	3.245	0.808	-1.488
1984Q1	-0.251	0.583	3.386	2.989	0.731	-0.849
1984Q2	-0.180	0.559	3.413	2.892	0.702	-0.616
1984Q3	-0.053	0.522	3.429	2.712	0.656	-0.182
1984Q4	-0.147	0.529	3.334	2.675	0.664	-0.489
1985Q1	-0.102	0.513	3.239	2.543	0.644	-0.329
1985Q2	0.258	0.486	3.418	2.285	0.609	0.882
1985Q3	0.598	0.526	3.198	2.131	0.661	1.914
1985Q4	0.316	0.493	3.373	2.139	0.619	1.067
1986Q1	0.302	0.503	3.186	2.009	0.631	0.961
1986Q2	-0.391	0.669	3.299	2.172	0.840	-1.290
1986Q3	-0.360	0.715	3.430	2.067	0.897	-1.236
1986Q4	0.335	0.500	3.194	1.703	0.628	1.070
1987Q1	0.753	0.507	3.198	1.529	0.637	2.407
1987Q2	0.601	0.412	3.138	1.296	0.518	1.884
1987Q3	0.284	0.326	3.131	1.149	0.409	0.888
1987Q4	0.042	0.266	3.131	1.059	0.334	0.130
1988Q1	0.075	0.260	3.221	1.069	0.327	0.240
1988Q2	0.094	0.259	3.272	1.080	0.325	0.308
1988Q3	0.130	0.265	3.311	1.111	0.333	0.430

1988Q4	-0.406	0.825	0.664	1.679	0.668	-0.270
1989Q1	-0.110	0.620	0.790	1.731	0.502	-0.087
1989Q2	0.085	0.502	0.646	1.695	0.406	0.055
1989Q3	0.082	0.487	0.563	1.713	0.394	0.046
1989Q4	0.091	0.416	0.610	1.686	0.337	0.056
1990Q1	0.162	0.449	0.416	1.714	0.363	0.067
1990Q2	0.208	3.643	0.358	1.677	2.950	0.074
1990Q3	0.176	3.475	0.469	1.625	2.814	0.083
1990Q4	0.196	3.573	0.469	1.562	2.893	0.092
1991Q1	0.085	3.097	0.643	1.546	2.508	0.054
1991Q2	-0.062	0.451	0.753	1.674	0.365	-0.046
1991Q3	-0.165	0.518	0.785	1.737	0.419	-0.130
1991Q4	-0.589	0.626	0.693	1.798	0.507	-0.408
1992Q1	-0.636	0.643	0.620	1.876	0.520	-0.395
1992Q2	-0.649	0.652	0.604	1.877	0.528	-0.392
1992Q3	-0.677	0.670	0.584	1.880	0.543	-0.396
1992Q4	-0.661	0.695	0.572	2.129	0.563	-0.378
1993Q1	-0.401	0.649	0.636	2.513	0.525	-0.255
1993Q2	-0.541	0.391	0.492	4.264	0.316	-0.266
1993Q3	-0.839	0.317	0.526	5.151	0.257	-0.442
1993Q4	-0.863	0.295	0.536	5.205	0.239	-0.463
1994Q1	-0.851	0.296	0.532	5.179	0.239	-0.453
1994Q2	-0.950	0.371	0.532	5.306	0.300	-0.505
1994Q3	-0.948	0.373	0.523	5.298	0.302	-0.496
1994Q4	-0.952	0.365	0.478	5.271	0.295	-0.455
1995Q1	-0.897	0.349	0.552	5.262	0.282	-0.496
1995Q2	-0.831	4.018	0.165	5.256	3.254	-0.137
1995Q3	-0.946	3.304	0.501	5.277	2.676	-0.474
1995Q4	-0.765	0.326	0.427	4.983	0.264	-0.327
1996Q1	-0.483	0.042	0.644	4.019	0.034	-0.311
1996Q2	-0.474	2.629	0.654	3.984	2.129	-0.310
1996Q3	-0.423	0.286	0.684	3.746	0.232	-0.289
1996Q4	-0.403	0.234	0.636	3.528	0.190	-0.256
1997Q1	-0.383	3.049	0.588	3.345	2.469	-0.225
1997Q2	-0.391	0.375	0.654	3.444	0.304	-0.256
1997Q3	-0.482	2.644	0.666	4.039	2.141	-0.321
1997Q4	-0.401	0.195	0.698	3.714	0.158	-0.280
1998Q1	-0.394	0.191	0.682	3.675	0.155	-0.269
1998Q2	-0.481	0.153	0.633	4.006	0.124	-0.304
1998Q3	-0.395	0.348	0.696	3.610	0.282	-0.275

1988Q4	0.143	0.272	3.472	1.174	0.342	0.495
1989Q1	0.133	0.284	3.483	1.254	0.356	0.463
1989Q2	0.122	0.289	3.300	1.355	0.363	0.401
1989Q3	0.122	0.265	3.196	1.341	0.333	0.390
1989Q4	0.134	0.246	3.138	1.438	0.308	0.421
1990Q1	0.120	0.189	3.131	1.543	0.238	0.377
1990Q2	0.093	0.193	1.635	1.616	0.242	0.152
1990Q3	0.115	0.132	1.771	1.688	0.166	0.204
1990Q4	0.122	0.139	2.322	1.654	0.174	0.284
1991Q1	0.126	0.187	3.355	1.555	0.235	0.422
1991Q2	0.103	0.274	3.190	1.445	0.344	0.329
1991Q3	0.106	0.280	3.227	1.425	0.351	0.341
1991Q4	0.095	0.281	3.221	1.451	0.353	0.305
1992Q1	0.098	0.307	3.566	1.388	0.385	0.349
1992Q2	0.112	0.300	3.467	1.362	0.377	0.389
1992Q3	0.122	0.256	3.156	1.311	0.321	0.384
1992Q4	0.195	0.297	3.395	1.148	0.372	0.660
1993Q1	0.189	0.202	2.000	0.889	0.253	0.378
1993Q2	0.092	0.132	1.891	0.751	0.165	0.174
1993Q3	-0.118	4.579	1.637	0.650	5.747	-0.194
1993Q4	-0.116	4.539	1.558	0.665	5.697	-0.180
1994Q1	-0.140	4.543	0.764	0.730	5.702	-0.107
1994Q2	-0.180	4.154	1.152	0.805	5.213	-0.207
1994Q3	-0.197	0.120	1.474	0.834	0.150	-0.291
1994Q4	-0.200	0.164	1.439	0.872	0.206	-0.288
1995Q1	-0.191	0.156	1.089	0.876	0.195	-0.208
1995Q2	-0.180	0.138	0.780	0.863	0.174	-0.140
1995Q3	-0.216	0.203	1.790	0.890	0.255	-0.386
1995Q4	-0.134	0.212	1.851	0.979	0.266	-0.248
1996Q1	-0.058	0.217	1.880	1.058	0.273	-0.109
1996Q2	0.059	0.240	2.042	1.206	0.301	0.121
1996Q3	0.047	0.243	2.081	1.240	0.305	0.099
1996Q4	0.038	0.250	2.071	1.267	0.314	0.078
1997Q1	0.008	0.192	2.075	1.302	0.242	0.017
1997Q2	-0.006	0.101	2.095	1.385	0.127	-0.013
1997Q3	-0.015	4.137	2.087	1.436	5.192	-0.031
1997Q4	-0.049	4.276	2.289	1.450	5.367	-0.112
1998Q1	-0.032	4.172	2.040	1.435	5.236	-0.065
1998Q2	-0.050	0.248	2.902	1.495	0.311	-0.144
1998Q3	-0.062	0.229	2.971	1.523	0.288	-0.185

1998Q4	-0.879	2.952	0.548	5.219	2.391	-0.482
		K=	149.876	2.019	L=	17.815
					M=	0.119
					N=	0.246

1998Q4	-0.017	0.123	2.038	1.413	0.155	-0.034
		K=	421.312	2.337	L=	-225.302
					M=	-0.535
					N=	-0.401

TABLE 22 POINTWISE AND POINT ELASTICITY ESTIMATES FOR NORWAY

LOCAL LINEAR LEAST SQUARES

SAMPLE PERIOD: 1966:I-1998:IV

IMPORT MODEL

	a1	se(a1)	f1	a2	se(a2)	a1*f1
1966Q1	-1.670	0.800	0.593	0.201	2.771	-0.990
1966Q2	-1.810	0.727	0.581	0.033	2.518	-1.052
1966Q3	-1.944	0.094	0.675	0.479	0.324	-1.312
1966Q4	-1.969	0.010	0.635	0.147	0.034	-1.250
1967Q1	-1.963	0.140	0.556	-0.098	0.486	-1.091
1967Q2	-1.940	0.158	0.755	0.485	0.546	-1.465
1967Q3	-1.857	0.196	1.018	0.638	0.680	-1.890
1967Q4	-1.921	0.189	1.054	0.594	0.654	-2.025
1968Q1	-1.939	0.147	0.917	0.447	0.508	-1.779
1968Q2	-1.933	0.123	2.471	0.514	0.428	-4.777
1968Q3	-1.607	0.190	3.080	0.739	0.657	-4.950
1968Q4	-1.883	0.155	3.012	0.622	0.538	-5.671
1969Q1	-1.922	0.147	2.693	0.597	0.511	-5.174
1969Q2	-1.911	0.155	2.531	0.606	0.538	-4.836
1969Q3	-0.612	0.208	3.647	1.477	0.720	-2.233
1969Q4	-0.834	0.217	3.062	1.324	0.752	-2.552
1970Q1	-1.928	0.518	3.587	0.561	1.795	-6.917
1970Q2	-1.533	0.171	3.652	0.782	0.594	-5.599
1970Q3	-0.188	0.189	3.586	1.628	0.654	-0.675
1970Q4	-0.520	0.181	3.588	1.517	0.627	-1.865
1971Q1	-0.972	0.163	3.586	1.206	0.564	-3.487
1971Q2	-0.674	0.190	3.642	1.435	0.658	-2.455
1971Q3	0.189	0.161	3.335	1.506	0.559	0.631
1971Q4	-0.257	0.152	3.175	1.605	0.528	-0.817
1972Q1	-0.220	0.068	2.352	1.607	0.236	-0.516
1972Q2	0.045	0.105	2.423	1.602	0.363	0.110
1972Q3	0.420	0.091	1.341	1.269	0.316	0.563
1972Q4	0.472	0.127	1.574	1.218	0.440	0.744
1973Q1	0.236	0.502	1.404	1.458	1.738	0.331
1973Q2	0.159	0.501	1.348	1.525	1.735	0.215
1973Q3	0.616	0.177	1.393	1.085	0.614	0.858
1973Q4	0.573	0.157	2.936	1.128	0.546	1.683
1974Q1	0.551	0.146	3.311	1.150	0.505	1.823
1974Q2	0.515	0.151	0.905	1.179	0.523	0.466
1974Q3	0.596	0.534	0.986	1.101	1.851	0.588

EXPORT MODEL

	b1	se(b1)	g1	b2	se(b2)	b1*g1
1966Q1	-1.457	7.047	2.808	1.373	2.974	-4.090
1966Q2	-1.347	6.533	3.625	1.453	2.757	-4.881
1966Q3	-1.509	0.600	2.823	1.392	0.253	-4.260
1966Q4	-1.526	0.689	3.671	1.370	0.291	-5.601
1967Q1	-1.495	0.645	3.627	1.385	0.272	-5.423
1967Q2	-1.477	0.596	4.165	1.387	0.251	-6.150
1967Q3	-1.657	0.841	4.255	1.301	0.355	-7.049
1967Q4	-1.115	1.125	4.131	1.430	0.475	-4.606
1968Q1	-1.096	1.131	4.208	1.425	0.477	-4.612
1968Q2	-1.167	0.802	4.129	1.402	0.338	-4.818
1968Q3	-1.026	1.183	4.319	1.418	0.499	-4.431
1968Q4	-1.052	1.140	4.445	1.407	0.481	-4.676
1969Q1	-1.152	1.182	3.762	1.372	0.499	-4.333
1969Q2	-1.071	1.157	3.930	1.353	0.488	-4.209
1969Q3	-0.909	1.023	4.425	1.339	0.432	-4.023
1969Q4	-0.872	0.959	4.443	1.335	0.405	-3.874
1970Q1	-0.786	0.830	4.161	1.331	0.350	-3.269
1970Q2	-0.867	0.929	4.432	1.326	0.392	-3.842
1970Q3	-0.728	0.771	3.811	1.332	0.326	-2.775
1970Q4	-0.604	0.586	3.185	1.321	0.247	-1.923
1971Q1	-0.623	0.680	3.227	1.336	0.287	-2.011
1971Q2	-0.640	0.812	3.368	1.344	0.343	-2.156
1971Q3	-0.690	0.961	3.883	1.367	0.406	-2.680
1971Q4	-0.892	1.012	4.406	1.375	0.427	-3.933
1972Q1	-1.077	0.971	3.583	1.355	0.410	-3.858
1972Q2	-1.050	0.862	3.502	1.350	0.364	-3.676
1972Q3	-0.945	0.842	3.770	1.378	0.355	-3.560
1972Q4	-0.376	1.037	4.422	1.535	0.437	-1.664
1973Q1	-0.950	7.521	3.714	1.373	3.174	-3.526
1973Q2	0.322	2.145	3.453	1.888	0.905	1.111
1973Q3	-0.003	2.259	3.237	2.269	0.954	-0.010
1973Q4	0.501	2.281	2.738	2.338	0.963	1.373
1974Q1	1.418	1.744	1.306	2.137	0.736	1.853
1974Q2	0.331	1.335	1.192	1.692	0.564	0.395
1974Q3	0.062	1.347	1.519	1.694	0.569	0.094

1974Q4	0.596	0.535	0.999	1.104	1.855	0.595
1975Q1	0.456	0.161	3.640	1.236	0.557	1.658
1975Q2	0.613	0.092	2.948	1.115	0.319	1.806
1975Q3	0.646	0.157	2.860	1.033	0.543	1.847
1975Q4	0.555	0.092	3.647	0.900	0.318	2.023
1976Q1	0.631	0.123	3.568	1.023	0.425	2.250
1976Q2	0.658	0.144	3.340	1.120	0.499	2.197
1976Q3	0.496	0.104	3.591	0.761	0.362	1.781
1976Q4	0.307	0.104	3.321	0.561	0.361	1.020
1977Q1	0.539	0.114	3.269	0.800	0.394	1.762
1977Q2	0.564	0.123	3.322	0.915	0.427	1.875
1977Q3	0.316	0.101	2.985	0.538	0.349	0.943
1977Q4	0.359	0.098	3.399	0.481	0.340	1.219
1978Q1	0.410	0.112	2.157	0.667	0.388	0.885
1978Q2	0.333	0.098	2.837	0.518	0.339	0.944
1978Q3	0.180	0.089	2.238	0.490	0.307	0.404
1978Q4	0.248	0.090	2.540	0.481	0.313	0.630
1979Q1	0.332	0.097	2.627	0.518	0.337	0.873
1979Q2	0.323	0.096	3.319	0.480	0.334	1.072
1979Q3	0.031	0.091	3.578	0.899	0.317	0.112
1979Q4	0.030	0.089	2.766	0.964	0.309	0.082
1980Q1	0.054	0.094	2.871	0.757	0.326	0.154
1980Q2	0.137	0.096	3.085	0.500	0.334	0.424
1980Q3	0.040	0.095	3.647	1.092	0.328	0.146
1980Q4	0.045	0.097	3.600	1.154	0.336	0.163
1981Q1	0.035	0.096	3.095	0.849	0.333	0.109
1981Q2	0.066	0.092	2.334	0.616	0.320	0.154
1981Q3	0.037	0.104	2.632	1.092	0.362	0.096
1981Q4	0.074	0.114	2.230	1.351	0.394	0.166
1982Q1	0.031	0.103	1.324	0.864	0.356	0.041
1982Q2	0.061	0.091	0.580	0.615	0.317	0.035
1982Q3	0.023	0.108	1.389	0.964	0.376	0.031
1982Q4	0.125	0.134	1.247	1.645	0.464	0.155
1983Q1	0.103	0.130	1.207	1.518	0.449	0.124
1983Q2	0.091	0.136	1.038	1.459	0.471	0.094
1983Q3	0.114	0.140	1.269	1.588	0.485	0.145
1983Q4	0.165	0.137	1.704	1.687	0.473	0.281
1984Q1	0.163	0.143	1.588	1.743	0.494	0.259
1984Q2	0.168	0.141	1.240	1.734	0.487	0.208
1984Q3	0.214	0.132	1.564	1.701	0.459	0.334

1974Q4	-0.228	1.101	1.580	1.478	0.465	-0.361
1975Q1	-1.129	1.491	1.173	1.668	0.629	-1.324
1975Q2	-1.470	1.278	1.225	1.475	0.539	-1.801
1975Q3	-1.044	1.074	1.593	1.057	0.453	-1.664
1975Q4	0.047	6.221	1.286	0.835	2.626	0.060
1976Q1	0.177	0.350	1.246	1.205	0.148	0.220
1976Q2	0.059	1.061	1.306	1.496	0.448	0.077
1976Q3	0.045	1.891	1.425	1.928	0.798	0.065
1976Q4	0.165	1.931	1.424	1.973	0.815	0.236
1977Q1	0.287	2.125	1.377	2.052	0.897	0.396
1977Q2	0.262	1.790	1.504	1.983	0.755	0.394
1977Q3	0.239	1.686	1.572	1.949	0.711	0.375
1977Q4	0.190	1.562	1.379	1.880	0.659	0.262
1978Q1	0.264	1.602	1.271	1.931	0.676	0.335
1978Q2	0.444	1.917	1.511	2.136	0.809	0.671
1978Q3	1.264	2.704	1.801	2.792	1.141	2.278
1978Q4	1.063	2.485	1.479	2.917	1.049	1.572
1979Q1	0.679	1.497	1.083	2.780	0.632	0.735
1979Q2	0.567	0.791	1.172	2.906	0.334	0.665
1979Q3	0.864	1.774	1.255	2.246	0.749	1.084
1979Q4	0.815	8.798	0.905	2.184	3.713	0.737
1980Q1	-1.387	0.470	1.624	1.351	0.198	-2.253
1980Q2	-0.894	0.799	1.861	1.485	0.337	-1.664
1980Q3	-0.592	0.736	1.258	1.707	0.311	-0.745
1980Q4	-0.870	0.752	1.815	1.497	0.317	-1.580
1981Q1	-0.538	0.911	1.218	1.757	0.385	-0.655
1981Q2	-0.216	0.956	0.936	2.014	0.403	-0.203
1981Q3	-0.765	0.878	1.625	1.571	0.370	-1.243
1981Q4	-0.162	0.937	0.884	2.009	0.396	-0.143
1982Q1	-0.108	0.776	0.825	1.960	0.327	-0.089
1982Q2	-0.806	0.640	1.636	1.537	0.270	-1.319
1982Q3	-0.645	5.376	1.280	1.653	2.269	-0.825
1982Q4	-0.872	5.157	1.659	1.475	2.176	-1.446
1983Q1	-1.585	5.548	1.588	1.254	2.342	-2.517
1983Q2	-0.947	5.768	1.273	1.309	2.434	-1.205
1983Q3	-1.428	0.385	1.652	1.325	0.162	-2.359
1983Q4	-0.975	0.847	1.899	1.456	0.358	-1.852
1984Q1	-0.984	0.831	1.867	1.464	0.351	-1.837
1984Q2	-0.923	0.863	1.894	1.491	0.364	-1.748
1984Q3	-1.154	5.363	1.481	1.408	2.263	-1.709

1984Q4	0.221	0.130	1.790	1.692	0.452	0.396
1985Q1	0.235	0.121	1.794	1.665	0.421	0.422
1985Q2	0.181	0.137	1.601	1.696	0.476	0.290
1985Q3	0.226	0.128	1.707	1.683	0.442	0.386
1985Q4	0.230	0.094	1.458	1.392	0.326	0.335
1986Q1	0.238	0.108	0.461	1.583	0.373	0.110
1986Q2	0.225	0.121	0.889	1.658	0.420	0.200
1986Q3	0.219	0.091	0.859	1.376	0.315	0.188
1986Q4	0.275	0.103	0.820	1.519	0.355	0.225
1987Q1	0.212	0.090	0.648	1.381	0.313	0.138
1987Q2	0.225	0.099	0.891	1.498	0.344	0.201
1987Q3	0.218	0.085	1.023	1.366	0.294	0.223
1987Q4	0.290	0.104	1.119	1.580	0.359	0.324
1988Q1	0.216	0.077	1.255	1.359	0.267	0.271
1988Q2	0.213	0.086	1.367	1.423	0.299	0.291
1988Q3	0.218	0.083	1.281	1.365	0.289	0.279
1988Q4	0.246	0.092	1.124	1.436	0.318	0.276
1989Q1	0.223	0.115	1.369	1.631	0.399	0.306
1989Q2	0.230	0.102	1.333	1.547	0.353	0.306
1989Q3	0.212	0.085	1.241	1.372	0.293	0.263
1989Q4	0.235	0.087	1.205	1.404	0.303	0.283
1990Q1	0.213	0.080	1.338	1.365	0.278	0.285
1990Q2	0.210	0.079	1.312	1.367	0.274	0.275
1990Q3	0.237	0.083	1.359	1.411	0.286	0.322
1990Q4	0.281	0.100	1.301	1.546	0.348	0.365
1991Q1	0.230	0.067	0.622	1.391	0.231	0.143
1991Q2	0.236	0.071	0.688	1.409	0.245	0.162
1991Q3	0.237	0.077	0.670	1.411	0.265	0.159
1991Q4	0.288	0.102	0.631	1.578	0.353	0.182
1992Q1	0.266	0.084	0.701	1.507	0.290	0.187
1992Q2	0.264	0.078	1.57[illegible]	1.501	0.269	0.415
1992Q3	0.280	0.089	2.511	1.562	0.307	0.703
1992Q4	0.232	0.135	2.035	1.712	0.469	0.472
1993Q1	0.279	0.089	2.413	1.557	0.307	0.674
1993Q2	0.283	0.091	2.493	1.575	0.316	0.706
1993Q3	0.237	0.130	2.391	1.701	0.452	0.568
1993Q4	0.036	0.167	2.022	1.813	0.580	0.072
1994Q1	0.210	0.146	2.491	1.741	0.507	0.522
1994Q2	0.212	0.144	2.493	1.735	0.498	0.528
1994Q3	0.114	0.173	2.367	1.805	0.600	0.270

1984Q4	-0.996	0.678	1.782	1.479	0.286	-1.776
1985Q1	-0.875	0.704	1.864	1.527	0.297	-1.632
1985Q2	-0.922	0.455	1.776	1.520	0.192	-1.637
1985Q3	-0.891	5.680	1.401	1.461	2.397	-1.249
1985Q4	-0.982	5.396	1.716	1.513	2.278	-1.686
1986Q1	-0.092	3.761	1.417	1.870	1.587	-0.131
1986Q2	0.020	2.819	3.766	1.946	1.190	0.074
1986Q3	-0.892	5.879	2.035	2.776	2.481	-1.815
1986Q4	-0.969	0.324	2.209	2.738	0.137	-2.140
1987Q1	-0.784	5.493	3.561	2.327	2.318	-2.791
1987Q2	-0.999	0.410	3.030	2.533	0.173	-3.028
1987Q3	-1.013	0.533	3.329	2.476	0.225	-3.373
1987Q4	-1.119	0.963	3.104	2.854	0.407	-3.472
1988Q1	-1.129	1.279	2.886	3.104	0.540	-3.258
1988Q2	-1.201	1.264	3.439	3.065	0.534	-4.131
1988Q3	-1.033	1.794	1.945	3.447	0.757	-2.009
1988Q4	-1.067	1.995	1.777	3.621	0.842	-1.897
1989Q1	-1.326	1.766	4.337	3.330	0.745	-5.752
1989Q2	-1.153	1.670	4.294	3.327	0.705	-4.950
1989Q3	-1.329	1.865	4.042	3.386	0.787	-5.372
1989Q4	-1.358	1.934	4.047	3.436	0.816	-5.498
1990Q1	-1.487	1.965	4.428	3.492	0.830	-6.582
1990Q2	-0.983	2.032	1.858	3.602	0.858	-1.827
1990Q3	-1.168	1.827	3.516	3.476	0.771	-4.107
1990Q4	-0.248	0.000	0.693	2.214	0.000	-0.172
1991Q1	-1.039	1.656	3.535	3.321	0.699	-3.675
1991Q2	-1.246	1.974	3.226	3.496	0.833	-4.019
1991Q3	-1.178	1.968	3.084	3.500	0.831	-3.632
1991Q4	-1.333	1.987	3.413	3.495	0.839	-4.548
1992Q1	-1.463	1.927	1.631	3.613	0.813	-2.386
1992Q2	-0.967	2.026	1.819	3.593	0.855	-1.759
1992Q3	-0.973	2.005	1.845	3.561	0.846	-1.796
1992Q4	-0.979	1.970	1.860	3.539	0.831	-1.821
1993Q1	-1.009	1.946	1.971	3.528	0.821	-1.989
1993Q2	-1.025	1.906	2.025	3.506	0.804	-2.077
1993Q3	-1.744	1.567	1.185	3.558	0.661	-2.067
1993Q4	-0.410	7.310	0.656	2.356	3.085	-0.269
1994Q1	0.171	10.806	0.393	1.881	4.561	0.067
1994Q2	-0.182	1.006	0.617	2.288	0.425	-0.112
1994Q3	-1.457	1.511	1.038	3.251	0.638	-1.513

1994Q4	-1.293	0.123	2.423	1.614	0.427	-3.132
1995Q1	-0.074	0.170	2.493	1.811	0.589	-0.183
1995Q2	0.049	0.183	1.288	1.807	0.635	0.063
1995Q3	-0.761	0.175	1.650	1.684	0.607	-1.255
1995Q4	-1.278	0.144	2.448	1.625	0.498	-3.129
1996Q1	-1.278	0.150	2.226	1.625	0.519	-2.845
1996Q2	-1.182	0.186	1.032	1.617	0.643	-1.220
1996Q3	-1.260	0.155	0.957	1.637	0.536	-1.206
1996Q4	-1.208	0.152	1.145	1.737	0.527	-1.383
1997Q1	-1.263	0.153	1.081	1.635	0.530	-1.366
1997Q2	-1.246	0.120	1.203	1.650	0.417	-1.499
1997Q3	-1.208	0.148	1.090	1.737	0.512	-1.316
1997Q4	-1.131	0.640	1.295	2.031	2.218	-1.465
1998Q1	-1.180	0.056	1.240	1.793	0.195	-1.463
1998Q2	-1.210	0.083	1.155	1.727	0.286	-1.398
1998Q3	-1.156	0.092	1.044	1.852	0.319	-1.207
1998Q4	-1.136	0.646	1.180	2.035	2.238	-1.340
		K=	257.589	1.241	L=	-40.887
					M=	-0.159
					N=	-0.212

1994Q4	-1.367	1.444	1.046	3.229	0.609	-1.429
1995Q1	-1.596	1.489	1.501	3.642	0.628	-2.395
1995Q2	-1.382	1.660	1.747	3.703	0.701	-2.416
1995Q3	-1.604	1.280	1.103	3.409	0.540	-1.770
1995Q4	-1.588	1.178	1.176	3.475	0.497	-1.867
1996Q1	-1.616	1.239	1.317	3.558	0.523	-2.128
1996Q2	-1.144	1.523	1.797	3.739	0.643	-2.056
1996Q3	-0.924	1.712	2.733	4.108	0.723	-2.526
1996Q4	-1.607	1.370	4.349	4.872	0.578	-6.988
1997Q1	-1.081	0.665	3.459	4.384	0.281	-3.740
1997Q2	-1.459	5.859	1.274	3.426	2.473	-1.858
1997Q3	-1.032	5.971	1.854	3.636	2.520	-1.914
1997Q4	-0.993	6.053	1.864	3.646	2.555	-1.851
1998Q1	0.362	8.529	0.531	2.254	3.600	0.192
1998Q2	0.425	1.193	0.482	2.050	0.504	0.205
1998Q3	0.187	0.888	0.370	1.936	0.375	0.069
1998Q4	-1.410	0.724	0.146	1.489	0.305	-0.206
		K=	305.814	2.228	L=	-265.957
					M=	-0.870
					N=	-0.731

TABLE 23 POINTWISE AND POINT ELASTICITY ESTIMATES FOR THE UNITED KINGDOM

LOCAL LINEAR LEAST SQUARES

SAMPLE PERIOD: 1957:I-1997:IV

IMPORT MODEL

	a1	se(a1)	f1	a2	se(a2)	a1*f1
1957 Q1	0.076	0.031	0.142	2.081	0.303	0.011
1957 Q2	0.075	0.035	0.154	2.085	0.341	0.012
1957 Q3	0.074	0.030	0.150	2.053	0.293	0.011
1957 Q4	0.073	0.036	0.381	2.052	0.355	0.028
1958 Q1	0.051	0.063	0.859	1.676	0.623	0.044
1958 Q2	0.073	0.942	1.018	1.938	9.274	0.074
1958 Q3	0.064	0.062	0.953	1.907	0.610	0.061
1958 Q4	0.055	0.066	1.026	1.750	0.647	0.056
1959 Q1	0.031	0.068	1.072	1.472	0.669	0.033
1959 Q2	0.011	0.086	1.093	1.413	0.848	0.012
1959 Q3	-0.597	0.170	1.050	2.116	1.669	-0.627
1959 Q4	0.536	0.130	0.932	2.304	1.284	0.499
1960 Q1	0.538	0.018	0.977	2.073	0.176	0.526
1960 Q2	0.798	0.110	1.054	2.567	1.078	0.840
1960 Q3	0.283	0.051	1.089	1.395	0.507	0.308
1960 Q4	0.252	0.048	1.097	1.318	0.470	0.276
1961 Q1	0.163	0.039	1.246	1.070	0.384	0.203
1961 Q2	0.153	0.033	1.207	1.049	0.321	0.185
1961 Q3	0.164	0.047	1.199	1.074	0.464	0.196
1961 Q4	0.177	0.052	1.215	1.119	0.513	0.215
1962 Q1	0.155	0.048	1.274	1.060	0.476	0.197
1962 Q2	0.215	0.044	1.350	1.443	0.436	0.291
1962 Q3	0.064	0.039	1.349	1.005	0.381	0.087
1962 Q4	0.216	0.043	1.348	1.442	0.421	0.291
1963 Q1	0.080	0.039	1.337	1.048	0.385	0.107
1963 Q2	1.950	0.067	1.330	1.059	0.660	2.593
1963 Q3	1.062	0.080	1.264	2.500	0.785	1.342
1963 Q4	1.277	0.112	1.204	2.388	1.106	1.538
1964 Q1	1.107	0.027	1.209	2.205	0.261	1.338
1964 Q2	0.708	0.069	1.310	1.918	0.676	0.928
1964 Q3	0.609	0.069	1.342	1.737	0.676	0.818
1964 Q4	0.213	0.056	1.346	1.319	0.554	0.286
1965 Q1	0.238	0.054	1.353	1.317	0.535	0.322
1965 Q2	0.239	0.054	1.315	1.320	0.528	0.314
1965 Q3	0.002	0.072	1.184	1.369	0.710	0.002

EXPORT MODEL

	b1	se(b1)	g1	b2	se(b2)	b1*g1
1957 Q1	-1.079	0.315	1.242	0.271	0.189	-1.339
1957 Q2	-1.066	0.290	1.266	0.270	0.174	-1.350
1957 Q3	-1.061	0.411	1.769	0.288	0.247	-1.877
1957 Q4	-1.017	0.473	2.522	0.330	0.284	-2.565
1958 Q1	-1.140	0.541	2.850	0.374	0.325	-3.248
1958 Q2	-1.128	0.386	2.992	0.440	0.232	-3.373
1958 Q3	-1.102	0.369	2.852	0.324	0.221	-3.142
1958 Q4	-0.472	0.562	2.871	0.432	0.337	-1.356
1959 Q1	0.115	0.686	2.687	0.496	0.412	0.308
1959 Q2	0.600	0.635	2.765	0.337	0.381	1.658
1959 Q3	0.245	0.619	2.964	0.492	0.371	0.726
1959 Q4	1.325	0.709	6.374	0.108	0.426	8.448
1960 Q1	1.169	0.572	5.979	0.070	0.343	6.991
1960 Q2	1.106	0.524	6.614	0.050	0.315	7.317
1960 Q3	0.978	0.488	6.859	0.056	0.293	6.709
1960 Q4	1.028	0.491	6.896	0.033	0.295	7.091
1961 Q1	1.203	0.601	5.215	0.079	0.361	6.276
1961 Q2	0.876	0.540	5.301	0.120	0.324	4.646
1961 Q3	0.395	0.468	5.919	0.182	0.281	2.337
1961 Q4	1.099	0.444	5.839	0.302	0.267	6.417
1962 Q1	1.326	0.483	5.782	0.337	0.290	7.667
1962 Q2	1.333	0.591	6.319	0.392	0.355	8.422
1962 Q3	0.113	0.719	6.475	0.722	0.432	0.733
1962 Q4	-0.115	0.588	6.917	0.766	0.353	-0.797
1963 Q1	-0.579	0.613	6.912	0.871	0.368	-4.003
1963 Q2	-2.167	0.820	6.922	0.975	0.492	-15.002
1963 Q3	-3.685	0.608	6.385	1.124	0.365	-23.529
1963 Q4	-5.358	0.782	6.452	1.239	0.470	-34.569
1964 Q1	-7.295	8.236	6.859	1.351	4.945	-50.032
1964 Q2	-8.104	0.885	5.835	1.392	0.531	-47.285
1964 Q3	-8.443	0.889	5.529	1.436	0.534	-46.685
1964 Q4	-8.441	0.562	5.966	1.487	0.337	-50.357
1965 Q1	-7.130	0.811	5.485	1.482	0.487	-39.110
1965 Q2	-5.262	0.802	5.420	1.457	0.482	-28.523
1965 Q3	-4.898	0.776	5.298	1.521	0.466	-25.949

1965 Q4	-0.221	0.076	1.189	1.397	0.753	-0.263
1966 Q1	-0.234	0.070	1.241	1.401	0.691	-0.290
1966 Q2	-0.297	0.066	1.221	1.464	0.646	-0.363
1966 Q3	-0.428	0.079	1.063	1.434	0.773	-0.455
1966 Q4	-0.364	0.094	0.973	1.453	0.921	-0.354
1967 Q1	-0.655	0.098	0.840	1.248	0.968	-0.550
1967 Q2	-0.760	0.126	0.743	1.267	1.243	-0.564
1967 Q3	-0.761	0.102	0.804	1.265	1.002	-0.612
1967 Q4	-0.800	0.134	0.730	1.166	1.322	-0.584
1968 Q1	-1.087	0.098	1.450	0.363	0.967	-1.576
1968 Q2	-1.130	0.870	1.721	0.291	8.563	-1.945
1968 Q3	-1.008	0.081	1.649	0.471	0.798	-1.662
1968 Q4	-0.914	0.068	1.738	0.558	0.667	-1.588
1969 Q1	-0.913	0.055	1.904	0.559	0.546	-1.739
1969 Q2	-0.928	0.071	1.969	0.701	0.695	-1.826
1969 Q3	-0.833	0.059	1.808	0.943	0.584	-1.506
1969 Q4	-0.727	0.073	1.763	1.108	0.721	-1.281
1970 Q1	-0.896	0.067	1.947	0.818	0.662	-1.745
1970 Q2	-0.574	0.082	2.029	1.358	0.805	-1.164
1970 Q3	-0.503	0.084	2.035	1.471	0.828	-1.025
1970 Q4	-0.471	0.049	1.837	1.338	0.483	-0.865
1971 Q1	-0.543	0.778	1.591	1.433	7.661	-0.864
1971 Q2	-0.447	0.826	1.546	1.296	8.127	-0.691
1971 Q3	0.071	0.034	1.693	0.881	0.339	0.120
1971 Q4	0.070	0.041	1.777	0.881	0.405	0.125
1972 Q1	-0.162	0.086	2.032	1.039	0.848	-0.330
1972 Q2	-0.019	0.106	2.034	1.203	1.047	-0.038
1972 Q3	-0.043	0.108	1.286	1.233	1.064	-0.055
1972 Q4	0.013	0.092	1.025	1.279	0.903	0.014
1973 Q1	0.145	0.061	2.033	0.649	0.605	0.295
1973 Q2	0.156	0.068	0.827	0.827	0.666	0.129
1973 Q3	0.153	0.070	0.974	0.628	0.685	0.149
1973 Q4	0.147	0.072	1.084	1.309	0.706	0.160
1974 Q1	0.093	0.099	1.245	1.331	0.978	0.116
1974 Q2	0.155	0.076	1.056	1.604	0.749	0.163
1974 Q3	0.177	0.048	1.108	1.452	0.476	0.196
1974 Q4	0.131	0.086	1.235	1.482	0.849	0.162
1975 Q1	0.140	0.083	1.219	1.485	0.813	0.170
1975 Q2	0.090	0.091	1.204	1.315	0.898	0.108
1975 Q3	0.080	0.084	1.184	1.261	0.825	0.095

1965 Q4	-2.523	0.751	5.455	1.077	0.451	-13.761
1966 Q1	-0.358	0.779	4.766	0.363	0.468	-1.705
1966 Q2	0.063	0.743	4.286	0.128	0.446	0.270
1966 Q3	-0.275	0.869	4.466	0.094	0.522	-1.229
1966 Q4	-0.723	0.949	4.716	0.072	0.570	-3.407
1967 Q1	-0.329	0.895	4.301	0.005	0.537	-1.415
1967 Q2	-0.007	0.879	3.993	-0.104	0.528	-0.026
1967 Q3	-0.387	1.007	3.967	-0.168	0.605	-1.535
1967 Q4	-1.053	1.244	6.215	0.425	0.747	-6.547
1968 Q1	-2.328	11.202	2.959	1.136	6.726	-6.888
1968 Q2	-1.264	1.056	4.852	0.952	0.634	-6.132
1968 Q3	-1.075	1.624	6.905	1.348	0.975	-7.422
1968 Q4	-2.671	1.574	6.799	1.691	0.945	-18.162
1969 Q1	-1.060	1.575	6.832	1.730	0.945	-7.241
1969 Q2	-0.178	1.056	6.833	1.713	0.634	-1.218
1969 Q3	-0.252	0.836	6.368	1.742	0.502	-1.603
1969 Q4	-0.592	1.173	3.539	1.705	0.704	-2.095
1970 Q1	-0.456	0.983	5.178	1.580	0.590	-2.359
1970 Q2	-0.351	0.934	5.734	1.322	0.561	-2.014
1970 Q3	0.678	0.735	6.889	0.969	0.441	4.669
1970 Q4	0.377	0.821	6.914	1.222	0.493	2.603
1971 Q1	0.179	0.777	6.452	1.080	0.466	1.152
1971 Q2	0.920	0.708	6.921	0.789	0.425	6.367
1971 Q3	1.249	0.822	6.032	0.596	0.494	7.533
1971 Q4	1.830	0.526	4.360	0.282	0.316	7.981
1972 Q1	2.291	0.153	4.622	-0.276	0.092	10.591
1972 Q2	2.369	0.727	4.681	-0.460	0.437	11.090
1972 Q3	-1.012	1.570	6.255	0.680	0.943	-6.329
1972 Q4	-2.097	1.612	2.832	1.444	0.968	-5.939
1973 Q1	-1.267	1.654	2.846	1.728	0.993	-3.605
1973 Q2	-0.875	1.680	2.766	2.016	1.009	-2.420
1973 Q3	1.979	0.729	1.095	1.091	0.438	2.166
1973 Q4	2.184	0.750	0.797	0.931	0.450	1.739
1974 Q1	2.230	0.565	0.597	0.966	0.339	1.331
1974 Q2	1.232	0.861	1.106	1.150	0.517	1.362
1974 Q3	1.897	0.722	1.031	1.201	0.433	1.956
1974 Q4	1.883	7.697	1.060	1.344	4.621	1.996
1975 Q1	-1.822	1.115	2.581	0.577	0.669	-4.704
1975 Q2	-1.976	1.203	2.571	0.677	0.722	-5.082
1975 Q3	-1.033	0.806	2.068	0.470	0.484	-2.135

1975 Q4	0.099	0.069	1.665	1.170	0.676	0.165
1976 Q1	0.149	0.064	1.889	0.896	0.625	0.282
1976 Q2	0.128	0.056	1.620	1.099	0.553	0.208
1976 Q3	0.142	0.058	1.768	0.618	0.567	0.251
1976 Q4	0.042	0.058	0.900	-0.094	0.568	0.038
1977 Q1	0.043	0.059	1.072	-0.069	0.579	0.046
1977 Q2	0.044	0.057	0.845	-0.147	0.559	0.037
1977 Q3	0.014	0.060	0.956	0.047	0.587	0.013
1977 Q4	-0.022	0.063	1.388	0.596	0.621	-0.031
1978 Q1	-0.018	0.072	2.018	1.197	0.706	-0.036
1978 Q2	-0.012	0.073	1.054	2.012	0.717	-0.013
1978 Q3	0.020	0.085	1.979	2.597	0.836	0.039
1978 Q4	0.030	0.089	1.987	2.949	0.877	0.059
1979 Q1	0.018	0.089	1.978	2.718	0.880	0.035
1979 Q2	0.110	0.959	1.981	2.371	9.435	0.218
1979 Q3	0.051	0.074	1.798	2.824	0.731	0.092
1979 Q4	0.072	0.056	1.964	2.518	0.553	0.141
1980 Q1	0.047	0.073	1.586	2.850	0.716	0.075
1980 Q2	0.009	0.090	1.909	2.583	0.887	0.018
1980 Q3	-0.009	0.091	1.562	2.376	0.900	-0.015
1980 Q4	-0.024	0.080	1.781	1.597	0.784	-0.042
1981 Q1	-0.017	0.069	1.963	0.993	0.680	-0.033
1981 Q2	-0.030	0.059	0.156	1.110	0.580	-0.005
1981 Q3	0.009	0.055	0.198	2.053	0.538	0.002
1981 Q4	0.005	0.059	0.175	2.042	0.582	0.001
1982 Q1	0.009	0.055	0.198	2.054	0.540	0.002
1982 Q2	0.050	0.055	0.297	2.489	0.537	0.015
1982 Q3	0.054	0.053	0.368	2.424	0.518	0.020
1982 Q4	0.061	0.053	0.529	2.287	0.522	0.032
1983 Q1	0.068	0.110	0.765	2.494	1.079	0.052
1983 Q2	0.071	0.110	0.687	2.554	1.084	0.049
1983 Q3	0.077	0.128	0.855	3.133	1.262	0.066
1983 Q4	0.038	0.126	0.954	3.625	1.241	0.036
1984 Q1	-0.180	0.113	0.967	1.958	1.112	-0.174
1984 Q2	-0.255	0.121	1.088	1.997	1.187	-0.277
1984 Q3	-0.621	0.139	1.312	0.962	1.366	-0.815
1984 Q4	-0.630	0.074	1.321	0.714	0.725	-0.833
1985 Q1	-0.524	0.964	1.210	0.747	9.491	-0.635
1985 Q2	-0.399	0.049	1.394	1.192	0.487	-0.556
1985 Q3	-0.395	0.082	1.266	1.145	0.803	-0.500

1975 Q4	-0.876	0.703	2.486	0.627	0.422	-2.178
1976 Q1	-1.757	1.600	2.873	1.502	0.961	-5.048
1976 Q2	0.603	0.677	1.083	0.972	0.406	0.653
1976 Q3	0.404	0.881	1.288	1.102	0.529	0.520
1976 Q4	2.034	0.773	1.042	0.986	0.464	2.119
1977 Q1	0.263	1.101	2.492	2.228	0.661	0.656
1977 Q2	-0.402	1.095	2.724	2.661	0.657	-1.096
1977 Q3	-0.486	1.514	3.227	2.691	0.909	-1.568
1977 Q4	-0.468	1.284	6.052	0.972	0.771	-2.831
1978 Q1	1.260	0.559	3.971	0.473	0.336	5.005
1978 Q2	-1.566	10.134	6.903	2.557	6.085	-10.812
1978 Q3	0.395	0.971	4.641	0.619	0.583	1.834
1978 Q4	0.517	1.469	4.322	1.363	0.882	2.235
1979 Q1	0.676	1.334	3.978	1.367	0.801	2.690
1979 Q2	0.409	0.950	3.582	1.547	0.571	1.466
1979 Q3	-0.300	0.593	3.878	1.200	0.356	-1.163
1979 Q4	0.041	0.722	2.843	1.416	0.433	0.116
1980 Q1	-0.546	0.889	2.291	1.278	0.534	-1.251
1980 Q2	-0.600	0.601	0.366	0.505	0.361	-0.219
1980 Q3	-0.644	10.622	0.549	-1.023	6.378	-0.354
1980 Q4	-0.647	0.270	0.528	-1.034	0.162	-0.342
1981 Q1	-0.654	0.209	0.422	-1.082	0.126	-0.276
1981 Q2	-0.579	0.444	0.462	0.151	0.266	-0.267
1981 Q3	-0.382	0.486	3.719	1.097	0.292	-1.420
1981 Q4	-0.563	0.489	2.841	1.031	0.294	-1.599
1982 Q1	-0.668	0.203	2.391	0.768	0.122	-1.598
1982 Q2	-0.446	0.119	3.952	0.712	0.071	-1.763
1982 Q3	-0.743	7.108	1.819	0.228	4.268	-1.351
1982 Q4	-0.441	7.111	3.871	0.381	4.270	-1.706
1983 Q1	0.953	0.798	3.997	1.033	0.479	3.810
1983 Q2	-0.346	0.270	3.708	0.884	0.162	-1.285
1983 Q3	-0.317	0.484	3.908	1.136	0.290	-1.240
1983 Q4	0.070	0.771	2.810	1.486	0.463	0.197
1984 Q1	0.138	0.880	3.040	1.687	0.529	0.419
1984 Q2	0.139	0.903	3.144	1.746	0.542	0.437
1984 Q3	0.192	1.135	4.055	1.938	0.681	0.780
1984 Q4	0.205	1.236	4.020	1.973	0.742	0.823
1985 Q1	-0.259	1.314	3.983	1.790	0.789	-1.034
1985 Q2	-0.109	0.909	3.822	1.700	0.546	-0.418
1985 Q3	-0.134	0.863	3.779	1.763	0.518	-0.506

1985 Q4	-0.587	0.078	1.139	1.939	0.771	-0.668
1986 Q1	-0.658	0.090	1.141	2.462	0.886	-0.750
1986 Q2	-0.428	0.101	1.123	2.336	0.998	-0.480
1986 Q3	-0.424	0.086	1.159	2.274	0.846	-0.492
1986 Q4	-0.386	0.031	1.256	2.231	0.307	-0.484
1987 Q1	-0.362	0.105	0.916	2.273	1.031	-0.332
1987 Q2	-0.314	0.118	0.848	2.361	1.161	-0.266
1987 Q3	-0.296	0.149	0.869	2.662	1.462	-0.257
1987 Q4	-0.177	0.089	0.541	2.633	0.876	-0.095
1988 Q1	-0.123	0.080	0.448	2.764	0.783	-0.055
1988 Q2	-0.106	0.082	0.483	2.769	0.808	-0.051
1988 Q3	-0.081	0.074	0.873	2.595	0.725	-0.071
1988 Q4	-0.073	0.062	0.812	2.384	0.607	-0.059
1989 Q1	-0.071	0.058	0.910	2.317	0.570	-0.065
1989 Q2	-0.065	0.046	1.180	2.092	0.455	-0.077
1989 Q3	-0.062	0.043	1.272	2.034	0.424	-0.079
1989 Q4	-0.061	0.042	1.365	1.985	0.410	-0.084
1990 Q1	-0.050	0.044	1.135	1.791	0.429	-0.057
1990 Q2	-0.039	0.042	1.377	1.674	0.413	-0.053
1990 Q3	-0.062	0.047	1.100	2.033	0.460	-0.068
1990 Q4	-0.070	0.056	0.865	2.260	0.551	-0.060
1991 Q1	-0.070	0.055	1.021	2.266	0.544	-0.072
1991 Q2	-0.074	0.060	1.332	2.355	0.590	-0.099
1991 Q3	-0.075	0.062	1.322	2.379	0.610	-0.100
1991 Q4	-0.075	0.061	1.387	2.383	0.601	-0.104
1992 Q1	-0.075	0.061	1.401	2.373	0.597	-0.105
1992 Q2	-0.078	0.067	1.392	2.440	0.655	-0.108
1992 Q3	-0.072	0.056	1.242	2.306	0.555	-0.090
1992 Q4	-0.066	0.040	1.017	2.054	0.391	-0.067
1993 Q1	-0.058	0.030	0.812	1.882	0.292	-0.047
1993 Q2	-0.052	0.033	1.131	1.775	0.324	-0.059
1993 Q3	-0.037	0.039	0.904	1.586	0.386	-0.033
1993 Q4	-0.052	0.040	0.720	1.336	0.398	-0.038
1994 Q1	-0.047	0.048	0.834	1.280	0.469	-0.040
1994 Q2	0.007	0.064	0.898	1.438	0.631	0.006
1994 Q3	-0.774	0.045	1.269	3.164	0.446	-0.982
1994 Q4	-0.675	0.069	1.278	3.143	0.682	-0.863
1995 Q1	-0.611	0.010	1.337	3.156	0.097	-0.817
1995 Q2	-0.557	0.017	1.377	3.169	0.168	-0.767
1995 Q3	-0.406	0.058	1.375	3.141	0.572	-0.559

1985 Q4	-0.073	0.972	3.659	1.689	0.584	-0.268
1986 Q1	-0.748	0.730	4.398	1.410	0.438	-3.292
1986 Q2	-0.591	0.616	5.076	1.438	0.370	-3.000
1986 Q3	0.081	12.903	3.082	3.785	7.747	0.249
1986 Q4	0.059	0.022	2.692	3.871	0.013	0.158
1987 Q1	-0.474	0.826	6.890	1.511	0.496	-3.265
1987 Q2	-0.402	0.827	4.150	1.344	0.497	-1.668
1987 Q3	-0.056	0.904	4.218	1.390	0.542	-0.237
1987 Q4	0.823	1.018	3.859	1.478	0.611	3.175
1988 Q1	1.016	0.941	3.899	1.489	0.565	3.962
1988 Q2	1.321	1.060	3.771	1.835	0.637	4.982
1988 Q3	0.961	0.750	3.946	1.860	0.450	3.791
1988 Q4	1.000	0.717	3.976	2.319	0.430	3.976
1989 Q1	0.999	0.843	4.331	2.713	0.506	4.327
1989 Q2	0.546	0.885	5.245	2.680	0.531	2.863
1989 Q3	0.381	0.764	5.508	2.432	0.458	2.097
1989 Q4	-1.418	0.636	6.824	0.938	0.382	-9.674
1990 Q1	-0.387	0.601	6.369	1.827	0.361	-2.467
1990 Q2	0.543	1.244	5.251	3.214	0.747	2.850
1990 Q3	1.195	1.252	3.587	3.330	0.752	4.286
1990 Q4	1.199	1.231	3.535	3.310	0.739	4.238
1991 Q1	1.281	1.218	3.981	3.257	0.731	5.101
1991 Q2	1.228	1.216	3.895	3.218	0.730	4.784
1991 Q3	1.287	1.179	3.936	3.156	0.708	5.067
1991 Q4	1.228	1.232	3.892	3.240	0.740	4.779
1992 Q1	1.285	1.236	3.926	3.246	0.742	5.044
1992 Q2	1.238	1.097	3.701	3.123	0.659	4.583
1992 Q3	1.257	1.013	3.844	2.942	0.608	4.833
1992 Q4	-2.650	0.509	3.903	1.371	0.306	-10.345
1993 Q1	1.219	0.893	3.515	2.852	0.536	4.284
1993 Q2	1.373	0.223	3.261	3.016	0.134	4.476
1993 Q3	1.614	6.698	3.950	3.084	4.021	6.376
1993 Q4	1.388	5.902	3.459	3.042	3.543	4.802
1994 Q1	1.287	0.753	3.314	3.165	0.452	4.265
1994 Q2	1.132	1.078	3.768	3.152	0.647	4.264
1994 Q3	0.967	1.287	3.918	3.071	0.773	3.790
1994 Q4	0.616	1.472	3.603	3.017	0.884	2.221
1995 Q1	0.598	1.380	2.816	3.177	0.829	1.684
1995 Q2	0.715	1.388	3.639	3.445	0.833	2.602
1995 Q3	0.827	1.410	3.770	3.492	0.847	3.119

1995 Q4	-0.283	0.098	1.303	3.101	0.969	-0.368
1996 Q1	-0.093	0.123	1.268	3.153	1.208	-0.118
1996 Q2	-0.082	0.145	1.262	3.017	1.431	-0.103
1996 Q3	-0.194	0.147	1.223	2.713	1.451	-0.238
1996 Q4	-0.358	0.084	1.273	2.324	0.831	-0.455
1997 Q1	-0.380	0.097	1.206	2.092	0.956	-0.458
1997 Q2	-0.357	0.095	0.946	2.062	0.935	-0.337
1997 Q3	-0.313	0.041	0.726	2.196	0.404	-0.227
1997 Q4	-0.242	1.228	0.701	2.379	12.086	-0.169
		K=	196.409	1.741	L=	-22.510
					M=	-0.115
					N=	-0.093

1995 Q4	0.928	1.383	4.083	3.754	0.830	3.788
1996 Q1	0.869	1.344	4.058	3.740	0.807	3.525
1996 Q2	0.669	1.142	3.992	3.730	0.686	2.669
1996 Q3	-0.090	0.635	3.357	3.542	0.381	-0.303
1996 Q4	-0.255	1.273	3.951	3.047	0.764	-1.008
1997 Q1	-0.344	1.098	3.551	2.887	0.659	-1.220
1997 Q2	-0.582	8.315	3.651	2.832	4.992	-2.124
1997 Q3	-0.672	8.541	3.835	2.759	5.128	-2.579
1997 Q4	-0.495	9.442	2.887	2.676	5.669	-1.430
		K=	665.556	1.428	L=	-293.944
					M=	-0.442
					N=	-0.262

TABLE 24 POINTWISE AND POINT ELASTICITY ESTIMATES FOR THE UNITED STATES

LOCAL LINEAR LEAST SQUARES

SAMPLE PERIOD: 1957:I-1997:IV

IMPORT MODEL

	a1	se(a1)	f1	a2	se(a2)	a1*f1
1957 Q1	-0.827	2.804	1.099	1.291	8.159	-0.909
1957 Q2	-0.829	2.774	1.398	1.332	8.072	-1.159
1957 Q3	-0.820	0.222	1.583	1.243	0.646	-1.299
1957 Q4	-0.827	0.180	1.785	1.357	0.524	-1.476
1958 Q1	-0.799	2.891	2.609	1.331	8.411	-2.084
1958 Q2	-0.810	2.853	2.201	1.384	8.302	-1.783
1958 Q3	-0.820	0.228	2.088	1.368	0.662	-1.713
1958 Q4	-0.817	0.274	2.013	1.239	0.797	-1.644
1959 Q1	-0.386	0.225	2.001	0.592	0.655	-0.773
1959 Q2	2.846	0.167	2.059	0.736	0.487	5.860
1959 Q3	2.868	0.170	2.067	0.725	0.494	5.927
1959 Q4	2.715	0.133	1.996	0.823	0.387	5.419
1960 Q1	1.809	2.179	2.001	1.447	6.339	3.621
1960 Q2	2.129	0.080	2.001	1.330	0.232	4.261
1960 Q3	2.012	0.102	2.015	1.382	0.296	4.053
1960 Q4	2.547	0.177	1.898	0.997	0.515	4.835
1961 Q1	2.315	0.181	1.779	1.216	0.527	4.119
1961 Q2	1.523	0.212	1.774	1.594	0.616	2.702
1961 Q3	1.347	0.210	1.765	1.758	0.611	2.377
1961 Q4	1.347	0.144	1.776	1.988	0.419	2.391
1962 Q1	0.984	0.239	3.072	2.007	0.696	3.023
1962 Q2	0.173	0.225	3.314	1.598	0.654	0.573
1962 Q3	-0.661	0.131	3.459	1.172	0.382	-2.288
1962 Q4	-0.824	0.101	3.322	1.123	0.294	-2.739
1963 Q1	-0.906	0.127	3.558	1.010	0.370	-3.224
1963 Q2	-0.711	0.122	3.443	1.090	0.354	-2.446
1963 Q3	-0.862	0.130	3.351	1.127	0.378	-2.889
1963 Q4	-1.142	0.184	3.640	1.177	0.535	-4.155
1964 Q1	-2.733	2.555	3.035	1.578	7.434	-8.295
1964 Q2	-2.937	2.621	2.757	1.629	7.628	-8.096
1964 Q3	-3.174	0.274	3.387	1.616	0.796	-10.753
1964 Q4	-3.270	0.262	3.250	1.613	0.762	-10.630
1965 Q1	-3.659	0.387	3.362	1.679	1.125	-12.302
1965 Q2	-3.538	0.211	3.579	1.824	0.614	-12.661
1965 Q3	-1.539	0.354	3.607	2.044	1.030	-5.552

EXPORT MODEL

	b1	se(b1)	g1	b2	se(b2)	b1*g1
1957 Q1	-4.536	0.799	4.499	1.057	0.731	-20.407
1957 Q2	-4.573	6.427	3.868	1.009	5.885	-17.688
1957 Q3	-4.567	6.403	3.922	1.015	5.862	-17.908
1957 Q4	-4.755	0.910	5.032	1.081	0.833	-23.926
1958 Q1	-4.741	0.469	5.165	1.304	0.429	-24.484
1958 Q2	-4.645	7.504	5.020	1.357	6.870	-23.319
1958 Q3	-4.933	0.659	5.426	1.127	0.603	-26.765
1958 Q4	-4.363	0.727	5.721	1.086	0.666	-24.960
1959 Q1	-3.490	0.573	6.059	1.529	0.524	-21.144
1959 Q2	-2.658	0.725	5.993	1.831	0.664	-15.929
1959 Q3	-3.002	0.815	5.991	1.855	0.746	-17.986
1959 Q4	-1.480	0.827	5.738	1.669	0.757	-8.492
1960 Q1	1.634	0.729	5.834	0.671	0.668	9.529
1960 Q2	1.608	0.734	5.846	0.719	0.672	9.400
1960 Q3	1.593	0.529	5.539	0.650	0.484	8.821
1960 Q4	1.525	0.629	5.657	0.763	0.576	8.627
1961 Q1	1.574	0.523	5.538	0.652	0.479	8.718
1961 Q2	0.718	0.198	5.234	0.647	0.182	3.756
1961 Q3	-0.370	0.436	5.258	0.480	0.399	-1.947
1961 Q4	-0.835	0.399	4.915	0.523	0.366	-4.102
1962 Q1	-0.421	0.499	5.112	0.684	0.456	-2.152
1962 Q2	0.713	0.715	5.627	1.075	0.655	4.013
1962 Q3	0.715	0.697	5.560	1.270	0.638	3.974
1962 Q4	0.697	0.769	5.657	1.295	0.704	3.941
1963 Q1	0.764	0.896	5.797	1.424	0.820	4.429
1963 Q2	-1.126	0.884	5.788	1.179	0.810	-6.519
1963 Q3	-1.263	1.027	5.860	1.339	0.940	-7.399
1963 Q4	-3.980	0.696	6.026	0.980	0.637	-23.981
1964 Q1	-3.808	0.567	6.031	1.034	0.519	-22.963
1964 Q2	-3.810	6.947	6.048	1.013	6.361	-23.047
1964 Q3	-4.277	0.136	6.034	1.200	0.125	-25.806
1964 Q4	-5.299	0.801	5.906	1.542	0.734	-31.295
1965 Q1	-5.314	1.226	5.334	1.542	1.123	-28.340
1965 Q2	-4.888	1.224	5.465	1.581	1.121	-26.711
1965 Q3	-3.797	0.845	5.731	1.555	0.774	-21.759

1965 Q4	-0.561	0.331	3.561	2.127	0.964	-1.996
1966 Q1	-0.881	0.147	3.633	2.093	0.427	-3.201
1966 Q2	-1.049	2.329	3.621	2.061	6.778	-3.799
1966 Q3	-1.227	0.253	3.368	2.059	0.736	-4.133
1966 Q4	-1.032	2.270	3.639	2.266	6.604	-3.754
1967 Q1	-0.950	2.166	3.635	2.399	6.304	-3.452
1967 Q2	-0.954	0.295	3.027	2.394	0.858	-2.886
1967 Q3	-0.913	0.378	2.154	2.452	1.099	-1.967
1967 Q4	-0.852	0.406	1.662	2.515	1.182	-1.415
1968 Q1	-0.606	0.372	1.659	2.760	1.083	-1.006
1968 Q2	-0.621	0.394	1.703	2.808	1.147	-1.058
1968 Q3	-0.506	0.271	2.200	2.917	0.789	-1.112
1968 Q4	-0.472	0.299	2.229	2.969	0.870	-1.052
1969 Q1	-0.468	0.194	1.910	3.072	0.565	-0.893
1969 Q2	-0.465	1.861	1.218	3.074	5.415	-0.566
1969 Q3	-0.467	1.875	0.906	3.024	5.457	-0.423
1969 Q4	-0.454	0.291	2.228	3.072	0.846	-1.012
1970 Q1	-0.465	0.290	2.227	3.074	0.845	-1.036
1970 Q2	-0.449	0.175	1.853	3.071	0.510	-0.832
1970 Q3	-0.468	0.284	2.230	2.977	0.826	-1.044
1970 Q4	-0.472	0.224	2.012	3.076	0.653	-0.950
1971 Q1	-0.670	0.306	2.145	2.987	0.890	-1.436
1971 Q2	-0.763	0.237	2.177	3.023	0.688	-1.660
1971 Q3	-0.947	0.199	2.152	3.114	0.578	-2.037
1971 Q4	-1.024	0.281	2.141	3.155	0.818	-2.192
1972 Q1	-1.653	0.248	1.800	3.572	0.722	-2.976
1972 Q2	-0.998	0.253	2.585	3.022	0.735	-2.580
1972 Q3	-0.810	0.207	2.885	2.726	0.602	-2.337
1972 Q4	-0.577	0.134	3.640	2.291	0.390	-2.099
1973 Q1	-0.395	0.089	2.370	1.805	0.258	-0.936
1973 Q2	-0.155	0.057	2.097	1.424	0.166	-0.324
1973 Q3	-0.182	0.103	2.417	1.432	0.300	-0.441
1973 Q4	-0.319	0.213	1.547	2.758	0.620	-0.493
1974 Q1	-0.103	0.206	0.845	2.639	0.600	-0.087
1974 Q2	0.119	0.300	1.930	2.762	0.873	0.229
1974 Q3	0.402	0.334	1.021	2.970	0.972	0.410
1974 Q4	0.407	0.326	0.966	2.953	0.948	0.393
1975 Q1	0.314	0.223	1.032	2.751	0.648	0.325
1975 Q2	0.258	0.253	1.167	2.792	0.737	0.301
1975 Q3	0.043	0.252	2.222	2.711	0.732	0.096

1965 Q4	-3.041	6.349	5.842	1.457	5.813	-17.763
1966 Q1	-1.942	6.107	5.705	1.384	5.592	-11.078
1966 Q2	-0.579	5.958	5.463	1.026	5.455	-3.161
1966 Q3	1.593	0.392	5.160	0.067	0.359	8.221
1966 Q4	1.990	0.564	4.492	-0.053	0.516	8.939
1967 Q1	1.891	0.535	4.658	-0.021	0.490	8.809
1967 Q2	1.959	0.522	4.681	-0.046	0.478	9.170
1967 Q3	2.731	0.428	4.811	-0.406	0.392	13.139
1967 Q4	2.888	0.602	4.200	-0.146	0.551	12.127
1968 Q1	3.412	0.504	3.617	-0.388	0.461	12.339
1968 Q2	3.296	6.641	2.675	-0.318	6.080	8.817
1968 Q3	-0.073	0.551	2.823	0.847	0.505	-0.207
1968 Q4	-2.889	0.880	2.959	1.221	0.806	-8.549
1969 Q1	-0.796	0.906	2.758	1.278	0.829	-2.195
1969 Q2	0.770	0.876	3.412	1.695	0.802	2.626
1969 Q3	1.012	0.778	2.844	1.850	0.712	2.879
1969 Q4	1.102	0.663	2.435	1.920	0.607	2.683
1970 Q1	1.133	0.624	3.037	2.006	0.571	3.441
1970 Q2	1.194	0.414	3.229	2.228	0.379	3.854
1970 Q3	1.221	0.508	3.518	2.272	0.465	4.297
1970 Q4	1.190	0.679	3.666	2.180	0.622	4.362
1971 Q1	1.229	5.628	2.734	2.269	5.153	3.362
1971 Q2	1.309	0.215	3.490	2.413	0.197	4.569
1971 Q3	0.536	1.178	5.203	2.543	1.078	2.787
1971 Q4	0.373	1.259	5.633	2.662	1.153	2.101
1972 Q1	-0.424	1.454	6.049	2.412	1.331	-2.562
1972 Q2	-0.729	1.443	6.044	2.372	1.321	-4.408
1972 Q3	-0.576	1.310	5.869	2.066	1.200	-3.382
1972 Q4	0.789	1.026	6.025	1.493	0.939	4.754
1973 Q1	0.786	0.822	5.654	1.390	0.753	4.444
1973 Q2	0.704	0.908	4.080	1.766	0.831	2.872
1973 Q3	0.518	1.085	2.892	2.320	0.993	1.498
1973 Q4	0.727	0.690	5.498	2.041	0.632	3.999
1974 Q1	0.841	0.478	6.013	1.667	0.438	5.059
1974 Q2	0.550	0.910	3.719	2.157	0.833	2.045
1974 Q3	0.848	0.721	5.505	1.720	0.660	4.671
1974 Q4	0.809	0.913	6.017	1.394	0.835	4.868
1975 Q1	-1.364	1.292	5.323	2.180	1.183	-7.260
1975 Q2	-2.077	1.337	5.063	2.429	1.224	-10.514
1975 Q3	-0.424	1.436	6.035	2.306	1.315	-2.558

1975 Q4	0.001	0.276	1.705	2.710	0.803	0.001
1976 Q1	0.013	0.319	2.103	2.596	0.928	0.026
1976 Q2	0.027	0.328	2.253	2.582	0.953	0.062
1976 Q3	0.025	0.325	2.232	2.573	0.945	0.056
1976 Q4	0.024	0.316	2.212	2.559	0.921	0.053
1977 Q1	0.048	0.314	2.276	2.442	0.914	0.109
1977 Q2	-0.331	0.289	2.271	2.144	0.842	-0.752
1977 Q3	-0.669	0.232	2.284	1.364	0.675	-1.527
1977 Q4	-0.643	0.227	2.276	1.310	0.659	-1.464
1978 Q1	-0.569	0.218	1.975	1.156	0.635	-1.124
1978 Q2	-0.189	0.133	1.766	-0.060	0.386	-0.333
1978 Q3	-0.187	0.136	2.284	-0.152	0.397	-0.426
1978 Q4	-0.212	0.143	2.279	-0.196	0.416	-0.484
1979 Q1	-0.225	0.144	1.944	-0.191	0.420	-0.437
1979 Q2	-0.229	0.144	1.351	-0.187	0.419	-0.309
1979 Q3	-0.246	0.145	0.753	-0.140	0.422	-0.185
1979 Q4	-0.247	0.141	0.282	-0.138	0.411	-0.070
1980 Q1	-0.244	0.129	0.859	-0.127	0.376	-0.210
1980 Q2	-0.212	0.140	0.863	-0.196	0.406	-0.183
1980 Q3	-0.210	0.140	0.827	-0.194	0.408	-0.174
1980 Q4	-0.234	0.132	0.865	-0.180	0.385	-0.203
1981 Q1	-0.258	0.143	0.710	0.239	0.417	-0.183
1981 Q2	-0.267	0.142	0.590	0.172	0.414	-0.157
1981 Q3	-0.288	0.207	0.475	0.707	0.602	-0.137
1981 Q4	-0.287	0.170	0.715	0.314	0.495	-0.205
1982 Q1	-0.247	0.144	0.517	-0.137	0.418	-0.128
1982 Q2	-0.260	0.150	0.938	-0.110	0.436	-0.244
1982 Q3	-0.254	0.150	1.458	-0.126	0.437	-0.370
1982 Q4	-0.256	0.151	1.696	-0.122	0.440	-0.434
1983 Q1	-0.293	0.173	2.194	0.172	0.502	-0.644
1983 Q2	-0.291	0.256	2.053	1.130	0.746	-0.598
1983 Q3	-0.166	0.330	1.634	1.852	0.960	-0.272
1983 Q4	0.051	0.418	1.592	2.517	1.217	0.081
1984 Q1	0.047	0.441	1.496	2.723	1.282	0.070
1984 Q2	0.097	0.190	1.489	2.622	0.553	0.144
1984 Q3	0.049	2.390	0.975	2.475	6.955	0.048
1984 Q4	-0.173	0.085	0.532	2.154	0.248	-0.092
1985 Q1	-0.453	0.305	0.684	1.750	0.887	-0.310
1985 Q2	-0.606	0.281	1.665	1.511	0.817	-1.009
1985 Q3	-0.590	0.235	1.946	1.509	0.685	-1.148

1975 Q4	0.243	1.394	5.862	1.968	1.276	1.427
1976 Q1	1.285	0.937	5.535	1.429	0.858	7.114
1976 Q2	1.437	0.522	5.230	1.322	0.478	7.516
1976 Q3	1.110	0.431	5.666	1.458	0.395	6.287
1976 Q4	0.798	0.562	5.805	1.478	0.514	4.632
1977 Q1	0.741	0.844	6.020	2.095	0.772	4.464
1977 Q2	0.722	0.887	6.045	2.232	0.813	4.363
1977 Q3	0.726	0.849	5.865	2.422	0.777	4.255
1977 Q4	0.626	0.891	5.355	2.538	0.815	3.350
1978 Q1	0.381	1.024	4.089	2.658	0.938	1.558
1978 Q2	0.238	1.041	4.061	2.749	0.953	0.968
1978 Q3	-0.062	1.107	3.186	2.725	1.014	-0.199
1978 Q4	-0.342	0.972	2.813	2.670	0.890	-0.961
1979 Q1	0.057	0.855	4.037	2.750	0.782	0.229
1979 Q2	0.136	0.443	4.782	2.836	0.406	0.651
1979 Q3	-0.289	5.737	3.212	2.686	5.252	-0.929
1979 Q4	-0.532	5.869	3.139	2.248	5.374	-1.670
1980 Q1	-1.572	6.436	1.972	1.715	5.892	-3.101
1980 Q2	-1.172	0.529	1.757	2.449	0.485	-2.060
1980 Q3	-1.067	1.017	1.932	2.461	0.931	-2.061
1980 Q4	0.130	0.707	4.563	2.871	0.648	0.593
1981 Q1	0.317	0.607	6.052	2.826	0.556	1.920
1981 Q2	-0.726	0.757	4.695	2.299	0.693	-3.409
1981 Q3	-1.644	0.730	2.444	0.698	0.668	-4.017
1981 Q4	-0.839	0.786	4.512	2.000	0.720	-3.787
1982 Q1	-1.496	0.781	2.631	2.064	0.715	-3.937
1982 Q2	-1.671	0.783	2.182	1.888	0.717	-3.646
1982 Q3	-1.827	0.557	1.600	1.686	0.510	-2.923
1982 Q4	-1.921	6.637	1.336	1.467	6.076	-2.567
1983 Q1	-1.907	0.254	1.350	1.461	0.232	-2.574
1983 Q2	-1.845	0.266	0.935	1.635	0.243	-1.725
1983 Q3	-0.908	0.324	0.615	0.930	0.296	-0.558
1983 Q4	-0.273	0.426	0.607	0.468	0.390	-0.165
1984 Q1	-0.134	0.408	0.612	0.324	0.374	-0.082
1984 Q2	0.247	0.405	0.577	0.279	0.370	0.142
1984 Q3	0.877	0.420	0.471	0.115	0.384	0.413
1984 Q4	0.881	0.376	0.402	0.074	0.344	0.354
1985 Q1	0.826	9.950	0.186	-0.747	9.109	0.153
1985 Q2	0.930	0.311	0.378	-0.168	0.284	0.351
1985 Q3	0.321	0.321	0.608	0.183	0.294	0.195

1985 Q4	-0.586	0.246	1.886	1.524	0.715	-1.105	-0.923	0.561	1.551	-0.407	0.514	-1.432
1986 Q1	-0.627	0.188	1.835	1.516	0.547	-1.150	-0.970	0.755	2.976	-0.021	0.691	-2.888
1986 Q2	-0.662	2.143	1.434	1.503	6.236	-0.949	-0.966	0.692	3.559	-0.008	0.633	-3.437
1986 Q3	-0.709	2.144	1.280	1.488	6.238	-0.907	-0.416	0.493	4.849	1.449	0.451	-2.016
1986 Q4	-0.730	0.070	1.569	1.485	0.204	-1.146	-0.096	0.618	5.354	2.631	0.566	-0.516
1987 Q1	-0.792	0.084	1.582	1.471	0.243	-1.253	-0.928	0.666	5.722	2.232	0.610	-5.310
1987 Q2	-0.796	0.174	1.942	1.388	0.507	-1.545	0.360	6.909	5.075	4.328	6.325	1.829
1987 Q3	-0.481	0.203	1.726	1.207	0.591	-0.831	0.581	1.350	5.928	4.260	1.236	3.444
1987 Q4	-0.107	0.136	1.949	1.015	0.395	-0.209	-0.453	1.494	2.834	3.742	1.368	-1.283
1988 Q1	-0.054	0.116	1.950	0.964	0.339	-0.106	-0.103	1.338	3.575	3.856	1.225	-0.370
1988 Q2	-0.050	0.061	1.601	0.915	0.178	-0.080	0.452	1.290	4.686	4.044	1.181	2.119
1988 Q3	-0.073	0.101	1.971	0.905	0.294	-0.143	1.719	1.688	5.925	4.312	1.545	10.185
1988 Q4	-0.112	0.065	1.937	0.982	0.189	-0.218	0.644	1.117	5.222	4.245	1.022	3.361
1989 Q1	-0.183	1.743	1.950	1.101	5.073	-0.357	0.892	1.088	5.913	4.348	0.996	5.275
1989 Q2	-0.194	0.052	1.971	1.174	0.151	-0.382	1.890	1.067	5.930	4.635	0.977	11.211
1989 Q3	-0.172	0.116	1.582	1.319	0.338	-0.271	1.293	1.095	6.050	4.451	1.002	7.822
1989 Q4	-0.138	0.119	1.582	1.435	0.346	-0.219	0.745	1.040	5.488	4.268	0.952	4.091
1990 Q1	-0.014	0.146	1.577	1.852	0.425	-0.023	0.300	0.990	3.842	4.231	0.906	1.154
1990 Q2	0.030	0.166	1.136	1.989	0.484	0.034	0.351	1.006	3.958	4.205	0.921	1.390
1990 Q3	0.002	0.157	1.413	1.907	0.457	0.003	0.271	0.842	1.683	3.996	0.771	0.456
1990 Q4	-0.097	0.105	1.950	1.583	0.306	-0.190	0.607	6.920	0.547	2.132	6.336	0.332
1991 Q1	-0.113	0.146	1.303	1.518	0.424	-0.148	0.494	0.485	1.021	3.557	0.444	0.504
1991 Q2	-0.038	0.171	1.401	1.784	0.498	-0.054	0.627	1.023	4.940	4.234	0.937	3.098
1991 Q3	0.011	0.177	1.553	1.930	0.515	0.016	0.593	1.020	4.789	4.237	0.934	2.839
1991 Q4	0.087	0.179	1.492	2.152	0.520	0.130	0.143	0.937	2.741	4.175	0.858	0.393
1992 Q1	0.358	0.182	1.583	2.807	0.529	0.567	0.157	0.927	2.586	4.152	0.849	0.406
1992 Q2	0.486	0.203	1.621	3.143	0.591	0.787	0.121	0.896	2.459	4.142	0.820	0.297
1992 Q3	0.481	0.269	1.581	3.213	0.784	0.761	0.495	0.816	0.528	2.745	0.747	0.262
1992 Q4	0.400	0.314	1.612	3.186	0.914	0.645	0.070	0.950	2.938	4.135	0.870	0.206
1993 Q1	0.408	0.199	2.199	3.196	0.579	0.897	1.674	1.156	5.979	4.541	1.058	10.007
1993 Q2	0.357	0.231	2.161	3.156	0.671	0.772	1.186	1.175	6.056	4.411	1.076	7.180
1993 Q3	0.299	0.178	2.593	3.101	0.519	0.775	2.273	1.242	5.755	4.639	1.137	13.079
1993 Q4	0.122	0.165	2.581	2.952	0.481	0.314	2.518	1.118	5.545	4.807	1.024	13.959
1994 Q1	-0.018	1.914	2.195	2.845	5.569	-0.040	2.825	0.588	5.369	5.031	0.538	15.169
1994 Q2	-0.089	0.212	2.581	2.726	0.616	-0.231	1.974	0.976	5.898	4.570	0.894	11.645
1994 Q3	-0.024	0.280	2.554	2.674	0.814	-0.062	0.861	1.076	5.914	4.128	0.985	5.089
1994 Q4	0.361	0.279	2.416	2.518	0.812	0.871	0.619	1.128	5.896	3.801	1.033	3.649
1995 Q1	0.468	0.263	2.268	2.479	0.765	1.061	0.490	1.055	5.125	3.783	0.966	2.510
1995 Q2	0.526	0.225	1.860	2.456	0.654	0.978	0.406	1.019	4.246	3.874	0.933	1.725
1995 Q3	0.583	0.130	2.157	2.383	0.378	1.258	0.489	1.054	5.082	3.791	0.965	2.483

1995 Q4	0.372	0.127	2.493	2.295	0.368	0.927
1996 Q1	0.176	0.103	2.559	2.203	0.300	0.451
1996 Q2	-0.278	0.046	2.620	1.995	0.134	-0.728
1996 Q3	-0.530	0.219	2.349	1.824	0.637	-1.244
1996 Q4	-1.167	2.301	2.531	1.328	6.695	-2.953
1997 Q1	-1.775	0.143	2.096	0.797	0.415	-3.721
1997 Q2	-1.910	0.262	2.058	0.704	0.762	-3.931
1997 Q3	-1.881	0.124	1.949	0.795	0.361	-3.666
1997 Q4	-1.776	3.075	1.768	0.961	8.948	-3.140
		K=	328.835	1.753	L=	-138.054

M= -0.420
N= -0.300

1995 Q4	0.451	1.019	4.741	3.775	0.933	2.140
1996 Q1	0.462	1.020	5.033	3.720	0.934	2.326
1996 Q2	0.303	1.029	5.840	3.611	0.943	1.768
1996 Q3	0.055	0.722	5.528	3.694	0.661	0.304
1996 Q4	0.341	0.570	5.086	3.416	0.522	1.735
1997 Q1	-0.172	0.604	6.056	2.789	0.553	-1.041
1997 Q2	-0.439	0.452	6.037	2.897	0.414	-2.649
1997 Q3	-0.583	0.166	5.813	3.005	0.152	-3.387
1997 Q4	-0.599	6.784	5.921	3.021	6.211	-3.546
		K=	717.771	2.087	L=	-186.600

M= -0.260
N= -0.226

APPENDIX F

The figures on the following pages show the sum of import and export elasticities for the periods in which the Marshall-Lerner Condition is satisfied. For the other periods the sum is taken as zero for visual ease.

FIGURE 1

ELASTICITY SUMS FOR MLC SATISFYING PERIODS :AUSTRALIA

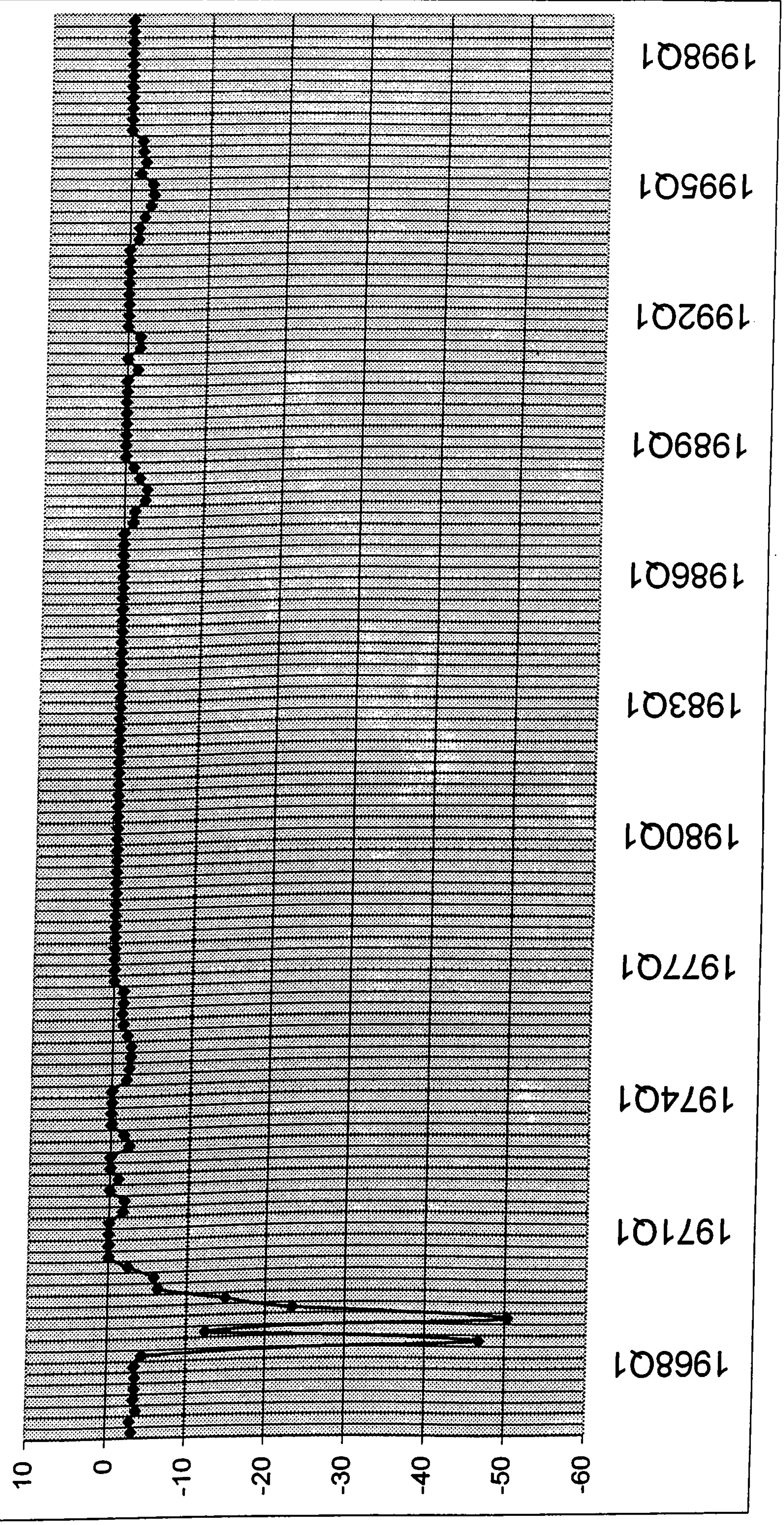

FIGURE 2
ELASTICITY SUMS FOR MLC SATISFYING PERIODS:GERMANY

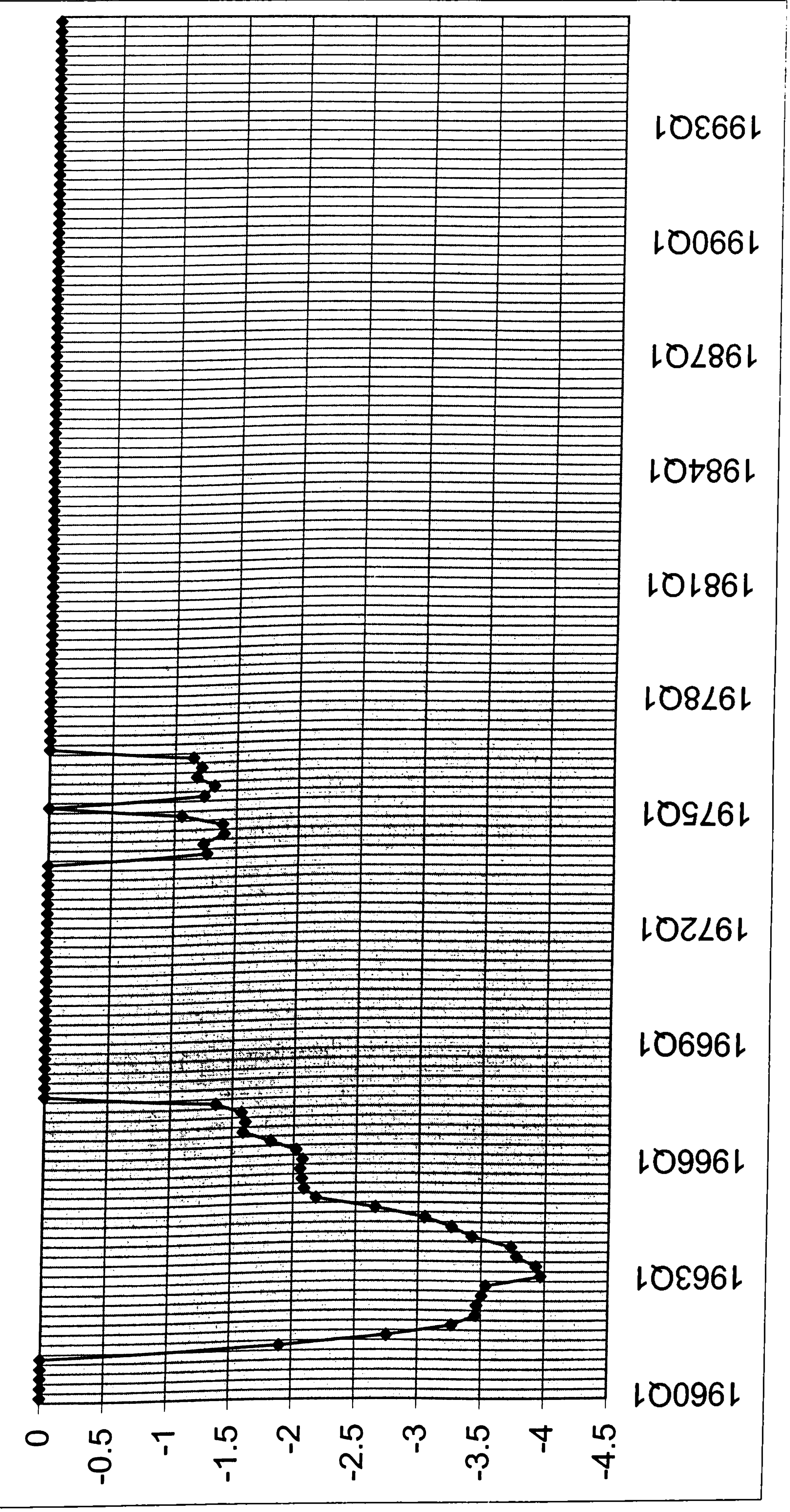

FIGURE 3
ELASTICITY SUMS FOR MLC SATISFYING PERIODS:JAPAN

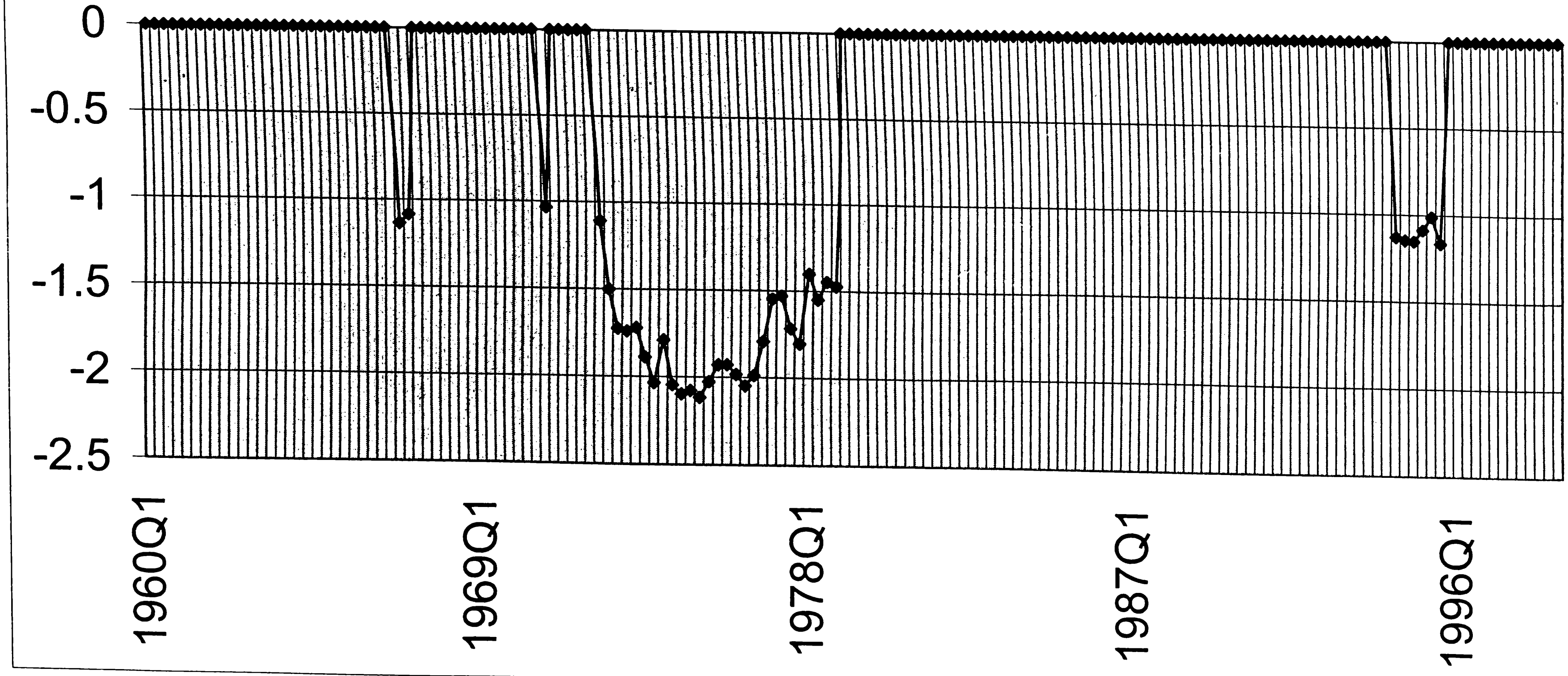

FIGURE 4
ELASTICITY SUMS FOR MLC SATISFYING PERIODS:NORWAY

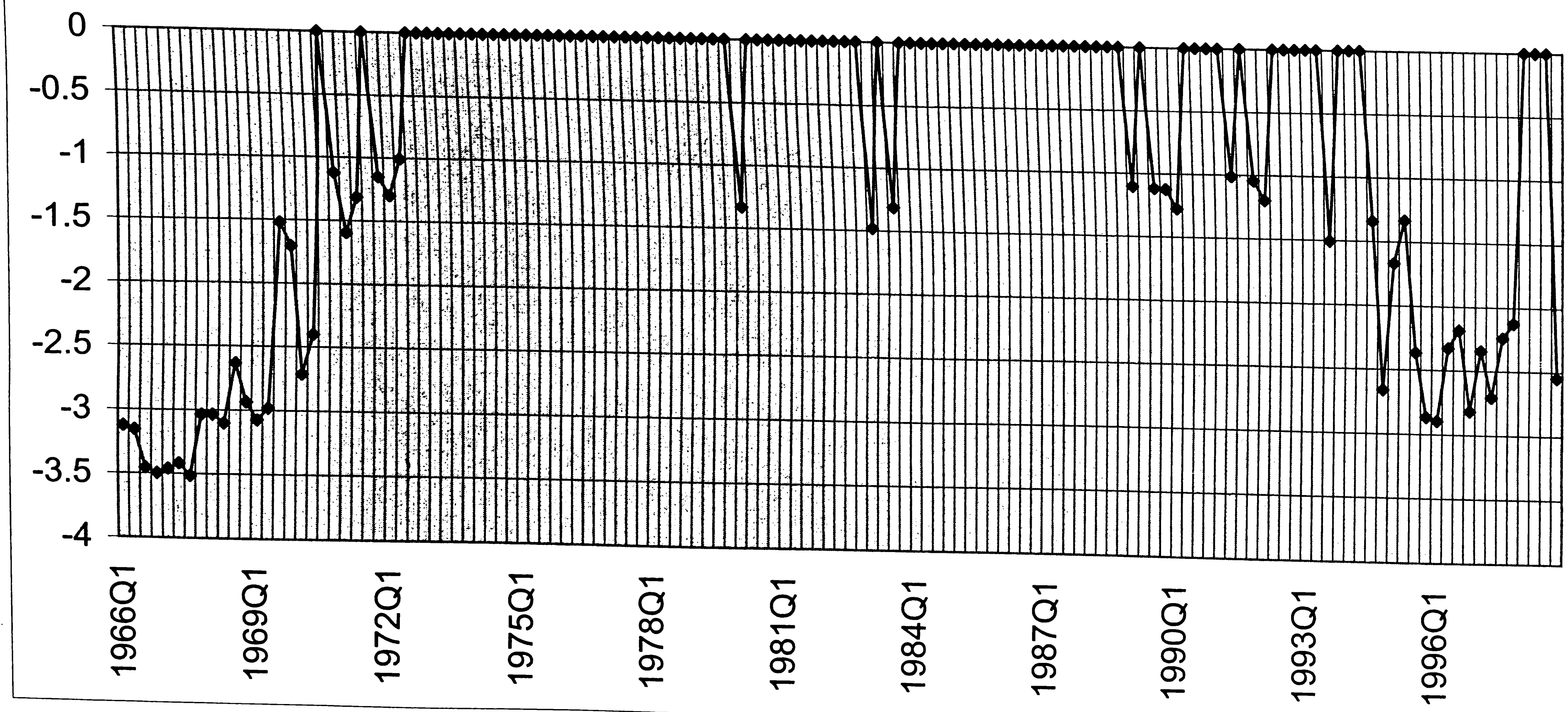

FIGURE 5
ELASTICITY SUMS FOR MLC SATISFYING PERIODS: THE UNITED KINGDOM

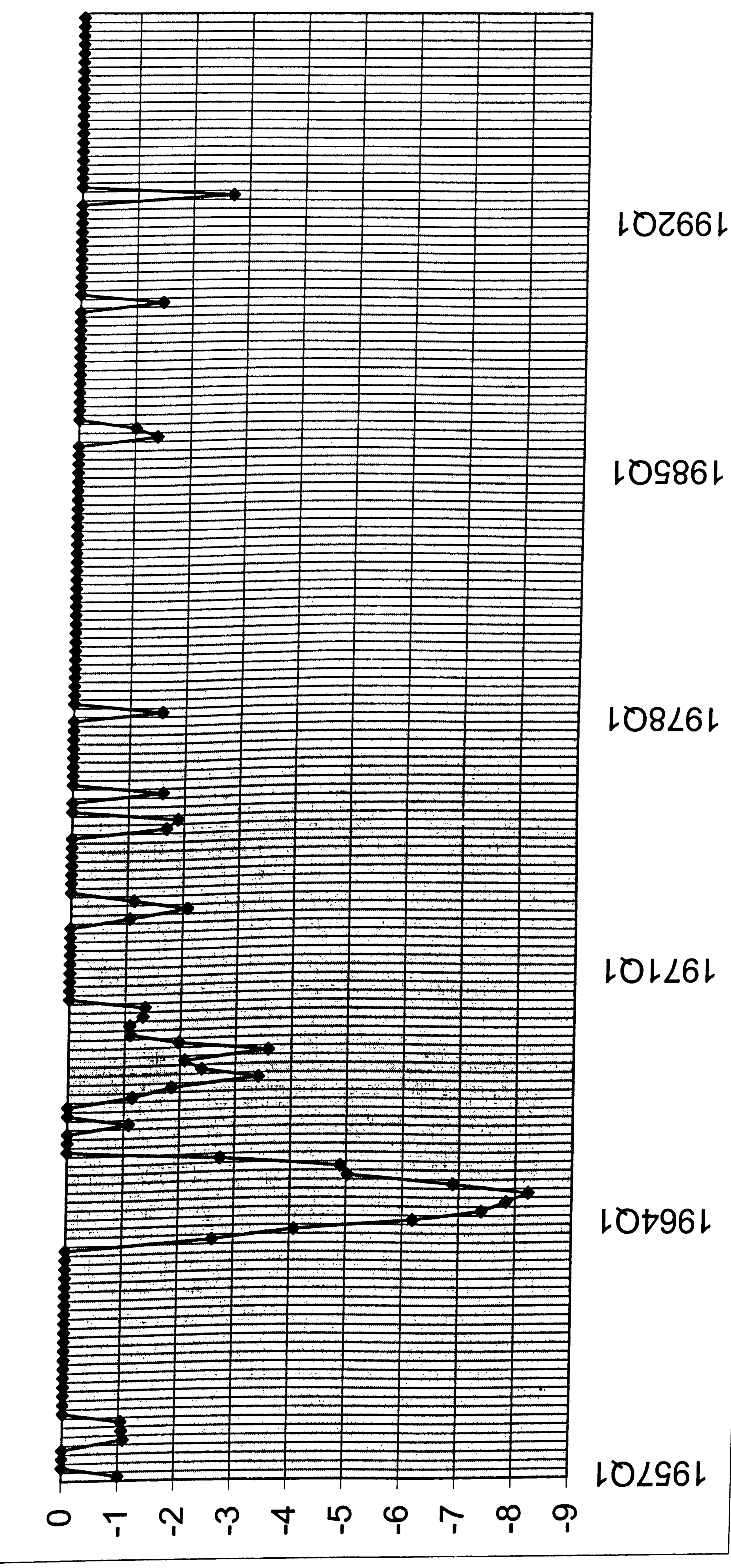

FIGURE 6
ELASTICITY SUMS FOR MLC SATISFYING PERIODS: THE UNITED STATES